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Report of a Survey
of the
City Health Department
of
Los Angeles, California

By the
United States Public Health Service

April-August
1939



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Report of a Survey
of the
City Health Department
of
Los Angeles, California

In Charge:

Medical Director, Francis A. Carmelia

Collaborators:

Senior Surgeon, N. E. Wayson
Sanitary Engineer, J. J. Bloomfield
Passed Assistant Surgeon, F. W. Kratz
Passed Assistant Sanitary Engineer, V. B. Lamoureux
Passed Assistant Surgeon, T. J. Bauer
Passed Assistant Surgeon, J. E. Dunn
Associate Milk Specialist, M. M. Miller
Public Health Nursing Consultant, Anna Heisler

United States Public Health Service

April-August, 1939

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FOREWORD

During the summer of 1938, the administration of the government of the city of Los Angeles was challenged and in accord with that unusual provision in the state laws of California a special election for recall of the duly elected officials eventuated. As a result of this election, the duly elected officials were recalled from office and other persons were elected to the vacated elective offices to administer the city government. The new administration, headed by the Honorable Fletcher Bowron, Mayor, was inducted into office September 26, 1938.

During the recall campaign, the conduct of the City Health Department was one of the administrative departments under criticism. Following induction into office, Mayor Bowron proceeded to give his attention to the status of the City Health Department. One of the first steps taken was to appoint a new Board of Health Commissioners whom he charged with making a study of the health department and with improving its efficiency.

The Board of Health Commissioners appointed were as follows:

Grant B. Cooper, Lawyer, President;
Maurice C. Sparling, Lawyer, Vice President;
John C. Ruddock, Doctor of Medicine, Member;
Ernest G. Bashor, Doctor of Osteopathy, Member;
George E. Moreland, Business Man (retired), Member.

The newly appointed Board of Health Commissioners began to make a study of the City Health Department; this study led them to resolve on January 25, 1939, to request the Surgeon General of the United States Public Health Service to detail an officer of that service, trained and experienced in public health, to make a survey of the City Health Department and to submit a report thereof to the board with recommendations in the premises.

BOARD OF HEALTH COMMISSIONERS

Executive Office, Health Department

CITY OF LOS ANGELES

Seventh Floor, 116 Temple Street

HON. FLETCHER BOWRON,
Mayor.

February 6, 1939.

Thomas Parran, M.D., Surgeon General,
United States Public Health Service,
Washington, D. C.

DEAR SIR: At a meeting of the Health Commission of the city of Los Angeles on January 25, 1939, a resolution was unanimously passed by the board, as follows:

RESOLUTION

WHEREAS, For many years there had been no evaluation or appraisal of the Health Department of the city of Los Angeles with regard to the application of public health in the city of Los Angeles by its various departments; and

WHEREAS, It is the desire of the Board of Health Commissioners and the Health Officer to raise the standards of public health as applied to the city of Los Angeles and increase the efficiency of the Health Department here, and as it is deemed necessary; therefore, be it

Resolved, That a request be made jointly by the Health Commission and the Health Officer to the United States Public Health Service under the direction of Thomas Parran, Surgeon General, for an appraisal of the Health Department of the city of Los Angeles, and its various divisions and that this report be given to the Board of Health Commissioners of the city of Los Angeles.

The Health Commission of the city of Los Angeles, therefore, does hereby petition you to assign to us for said survey an officer of the United States Public Health Service, in order that we may have a proper and disinterested appraisal of the health problems and the application of public health service to the area of the city of Los Angeles.

The members of the present Health Commission were recently appointed by Mayor Fletcher Bowron, who has been but recently elected to this office, and none has any political aspiration or any political promises to fulfill. None of the members of the present commission have had any instructions from any political body, nor even from the mayor, except the statement made by him to the members of the commission, "I wish you would make the Health Department of Los Angeles an outstanding one."

The scope of the survey contemplated would be a complete survey of the health problems in this area, with an analysis of the application of public health to this area, with recommendations for changes and improvements in the administration and field work of such public health application. The survey, as desired, is not for the purpose of removing any personnel, and is activated and requested entirely for the purpose of improving the standard of public health in this area.

There is available, from local sources, monies sufficient to cover the living expenses of the officer making this survey. Likewise, transportation and any necessary clerical assistance will be furnished.

Will you please inform us whether it is possible to undertake such a survey, and if so, when it could be made. Could you give us an approximate time in which such a survey could be done and how long it would take to complete an evaluation of our Health Department? Also, please inform us the local monies necessary for us to have.

Respectfully,

(S) GRANT B. COOPER,
President, Board of Health Commissioners.

I concur heartily in the above request as made by the Board of Health Commissioners of the city of Los Angeles on January 25, 1939. It is only with the help of such surveys that the Public Health Officer of a large area of this character can apply public health up to the accepted standard of the United States Public Health Service. I wish to state that I desire to assist this survey in every way possible and hope that the information obtained will be such as to institute needed changes in the laws, ordinances and education of the people of the City of Los Angeles with regard to public health.

Respectfully,

(S) GEORGE PARRISH, M.D.,
Health Officer, City of Los Angeles.

This resolution was duly transmitted to Surgeon General Thomas Parran through Dr. Walter M. Dickie, Director of the California State Department of Public Health by the President of the Board of Health Commissioners under date of February 6, 1939, and promptly forwarded to the Surgeon General by the director with favorable endorsement under date of February 9, 1939.

BOARD OF HEALTH COMMISSIONERS

Executive Office, Health Department

CITY OF LOS ANGELES

Seventh Floor, 116 Temple Street

HON. FLETCHER BOWRON,
Mayor.

February 6, 1939.

Walter M. Dickie, M.D.,

Director, California State Department of Public Health,
313 State Building,
San Francisco, California.

DEAR SIR: Enclosed please find a request from the Health Commission of the city of Los Angeles to the Surgeon General of the United States Public Health Service, to conduct a survey of the Health Department of the city of Los Angeles. With regard to the scope of the survey and the reason for it, I will refer you to the enclosed communication.

The Health Commission of the city of Los Angeles does hereby make application to you for the use of social security funds which may have been made available through the State Department of Public Health for such purposes as this survey. It is felt that should the Surgeon General comply with the request which we have made, that a sum, not to exceed \$1,500, would be ample for a survey of this character.

The Board of Health Commissioners of the city of Los Angeles requests that you endorse the enclosed communication to the Surgeon General of the United States Public Health Service urging that he expedite this contemplated survey at the earliest possible time.

Thanking you for your prompt attention and forwarding of this communication, I am

Respectfully,

(S) GRANT B. COOPER,
President, Board of Health Commissioners.

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC HEALTH

February, 9, 1939.

The Surgeon General, U. S. Public Health Service,
Washington, D. C.

DEAR SIR: Enclosed is resolution I have received from the city of Los Angeles, under date of February 6th, and also copy of letter addressed to me by the President of the Board of Health Commissioners, city of Los Angeles.

I am agreeable to having the Public Health Service make this survey.

Very truly yours,

(S) WALTER M. DICKIE,
Director of Public Health.

Upon receipt of these communications Surgeon General Parran gave favorable consideration to the request of the board and assigned officers of the Public Health Service to undertake the survey under the supervision of Medical Director Francis A. Carmelia, regional supervisor of the public health activities of the Public Health Service in the eleven Rocky Mountain and Pacific coast states and the territories of Alaska and Hawaii.

UNITED STATES
PUBLIC HEALTH SERVICE
Washington

March 8, 1939.

Mr. Grant B. Cooper, President, Board of Health Commissioners,
City of Los Angeles,
Los Angeles, California.

DEAR MR. COOPER: I am pleased to inform you that, in accordance with the resolution adopted by the Board of Health Commissioners of the city of Los Angeles under date of January 25, 1939, concurred in by Dr. George Parrish, Health Officer of the city of Los Angeles, and agreed to by Dr. Walter M. Dickie, State Director of Public Health of California, the Public Health Service will make an appraisal of the Health Department of the city of Los Angeles, and submit a report to the Board of Health Commissioners.

Medical Director F. A. Carmelia will supervise the appraisal, assisted by certain other selected officers of the Public Health Service. It is planned to begin the appraisal about April 1, 1939.

Sincerely yours,

(S) THOMAS PARRAN,
Surgeon General.

U. S. PUBLIC HEALTH SERVICE
112 Federal Office Building

San Francisco, California, March 8, 1939.

Medical Director F. A. Carmelia, Officer in Charge,

U. S. Public Health Service,
112 Federal Office Building,
San Francisco, California.

DEAR DR. CARMELIA: I have given considerable thought to the request of the Los Angeles Board of Health Commissioners for the Public Health Service to make an appraisal of the Health Department of the city of Los Angeles.

In view of the splendid opportunity which is afforded the Public Health Service to render an important service to the West Coast area in general and to Los Angeles in particular by making this appraisal, I have decided that the Public Health Service will comply with the request. * * * It would seem that you could plan on beginning the appraisal in Los Angeles by April 1.

The Los Angeles Board of Health Commissioners and Dr. Dickie are being informed that the appraisal will be made and will be under your supervision.

Sincerely yours,

(S) THOMAS PARRAN,
Surgeon General.

Pursuant to these authorizations a preliminary conference with the Board of Health Commissioners and the city health officer was had by Dr. Carmelia April 6-7, 1939, at which arrangements were made for beginning the survey.

The survey was begun April 20, 1939, and the field collection of data was completed August 15, 1939; a total of eight service officers, specialized in various aspects of public health work, collaborated in making the survey under the supervision of the senior officer in charge. The period August 15, 1939, to November 30, 1939, was taken up in studying the data collected and the preparation of preliminary drafts of report sections by the various collaborators. Preparation of the final draft of the entire report by the officer in charge was begun January 15, 1940, and completed April 20, 1940.

Opportunity is taken at this time to express the appreciation and thanks of the surveyors and the officer in charge for the splendid cooperation received by all from the officers and employees of both state and local agencies; especially recognition in this regard should include Doctor Walter M. Dickie, director, and the various employees of the State Department of Public Health, the Board of Health Commissioners and Doctor George Parrish, the City Health Officer and the various employees of the City Health Department, representatives of various other departments of the city government and of other official and unofficial agencies in the city of Los Angeles, and many others too numerous to mention here.

Let it suffice to say that without exception every help and courtesy was extended to the surveyors and seldom is such a marked degree of universal cooperation experienced in survey work. All those who cooperated with the surveyors in the conduct of this survey share in any credit or appreciation accruing therefrom for obviously the surveyors only contributed trained technique and without such cooperation in making available local data and other information, any survey study would necessarily fall short of its objective—so again, our many sincere thanks.

It was the earnest endeavor and it is the hope of the surveyors, that this survey and report will prove of benefit to the community and be of value to those who entrusted the undertaking to the Public Health Service.

San Francisco, April 20, 1940.

FRANCIS A. CARMELIA, M.D.

UNITED STATES
PUBLIC HEALTH SERVICE
112 Federal Office Building
San Francisco, California

April 20, 1940.

Dr. Walter M. Dickie, Director, Department of Public Health.
313 State Office Building, Civic Center,
San Francisco, California.

DEAR DOCTOR DICKIE: Pursuant to instructions of the Surgeon General of the U. S. Public Health Service, there is forwarded herewith, a report of the survey and appraisal made by assigned officers of the Public Health Service of the organization and activities of the Health Department of the City of Los Angeles, in response to request made by the Board of Health Commissioners, dated February 6, 1939.

Subject to your approval, it is requested that this report be transmitted to the Board of Health Commissioners of the City of Los Angeles.

Very truly yours,

(S) F. A. CARMELIA,
Medical Director

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC HEALTH
San Francisco, California

April 23, 1940.

Dr. John C. Ruddock, President, Board of Health Commissioners,
116 West Temple Street, Los Angeles, California.

DEAR DOCTOR RUDDOCK: There is transmitted herewith, the report of the survey and appraisal of the organization and functions of the Los Angeles City Health Department made by the U. S. Public Health Service in response to the board's request of February 6, 1939.

Very truly yours,

(S) WALTER M. DICKIE,
Director of Public Health.

GENERAL CONSIDERATIONS

By MEDICAL DIRECTOR F. A. CARMELIA and P. A. SURGEON F. W. KRATZ,
U. S. Public Health Service

Historical

California was discovered by the Spanish explorer, Juan Rodriguez Cabrillo, who first landed at San Diego Bay in 1542 and claimed the whole country for the Spanish crown. In 1602, a second Spanish explorer, Sebastian Viscaino, visited the region of Los Angeles and reaffirmed the Spanish claim. It was Viscaino who first found the settlement of the Yang Na Indians numbering some 300 along the banks of the Los Angeles River about a mile below what was destined to become the site of the pueblo of Los Angeles.

San Diego Mission, founded in 1769 was the earliest development of European civilization in California Alta. In 1771, the explorer Caspar de Portolo and that arduous colonizer, the missionary, in the person of Father Juan Crespi marched north from the San Diego Mission and established the San Gabriel Mission, which was followed by early settlement of the vicinity. All life in those days revolved about the mission; it was primarily communal among the Indians, who were disciplined by soldier guards of the mission. By right of exploration, Spain had claimed the land; its inhabitants assumedly became her subjects whom she dominated through her appointed governor in the interest of an indifferent and selfish "mother country." This increasing domination of the civil presidio, as the seat of official government, over the secular mission, as the original spiritual and communal center of colonization, found expression in the official founding ten years after the founding of San Gabriel Mission, of the pueblo de Los Angeles by the Spanish governor, and was activated by the growing importance and volume of the region's agricultural products, the exploitation of which by the Presidio of the Spanish government was opposed by the mission.

In 1781, "El Pueblo de Nuestro Sonora la Reina de los Angeles de Porciuncula" was officially founded nearby the San Gabriel Mission by Felipe de Neve, Spanish governor of California, and thus Los Angeles is the second oldest city officially founded in California, and the third oldest in rank as an early colonized habitation center.

In 1822 news arrived from Mexico that all these one-time Spanish colonies were then free and independent. However, little difference was noted at "El Pueblo de los Angeles" where Mexican authority followed when Spanish domination ended. It really constituted only a change in name as there still was no freedom and very little change in government.

California was a new, undeveloped and desirable country, poorly protected. All of the great world powers were "watchfully waiting"; their navies were prowling the Pacific, their exploring parties penetrating the land. The United States was favored geographically and because of this her people had more rapidly penetrated and numerously settled in the new land. At Sonoma, William B. Ide had proclaimed his short-lived republic under the Bear Flag. These facts were underlying the whole aggressive policy of the United States.

A message written by the Secretary of the Navy Bancroft, at Washington, D. C., to Commander Sloat of the United States Pacific Squadron, expressed the attitude of the United States in 1846: "The Mexican ports on the Pacific are said to be open and defenseless. If you ascertain with certainty that Mexico has declared war against the United States, you will at once possess yourself of the port of San Francisco, and blockade or occupy such other ports as your force permits." On July 7, 1846, Commander Sloat raised the Stars and Stripes over Monterey, then turned the command over to Commodore Stockton, who, with Fremont, then proceeded south where Captain Gillespie was placed in charge of the Los Angeles garrison on August 13, 1846, the day the city of Los Angeles was taken.

But this garrison of fifty soldiers left at Los Angeles was insufficient to insure what otherwise might have been a bloodless conquest of California Alta. The local Californians, under the leadership of a Mexican named Flores, forced the American garrison to march to San Pedro and embark for Monterey. While the American forces were thus being defeated in the south, Fremont was organizing his force in the north. Subsequently Stockton and his force, after unsuccessfully attempting a landing at San Pedro with the object of retaking Los Angeles, proceeded to San Diego.

Then from out of the desert, came a new figure of importance to the American conquest of California, General Stephen W. Kearny, marching west with his victorious army from the Texas campaign. At the eastern border of the western desert, he had been met by Kit Carson with news of earlier American success in the conquest of California. Because of this good news, Kearny sent back to the "States" all but 121 of his men. With these, he continued west, marching across the hot barren desert. He and his weary worn soldiers little expected the surprise attack at San Pasqual from the elated Angelenos where thirty-seven Americans were killed and wounded in the bloodiest battle of the California Alta campaign. Luckily, however, with the aid of reinforcements sent by Stockton, Kearny with his remaining force reached San Diego and here plans were made to march on to Los Angeles—the last remaining Mexican stronghold in California Alta.

In January, 1847, after little resistance, Kearny entered the city with hardly a shot fired. Two days later Fremont entered Los Angeles from the north.

The Treaty of Cahuenga, signed by Andres Pico and John C. Fremont, January 13, 1847, ended hostilities in California Alta and made clear the claims of the United States, which were settled in Mexico City the following year.

The Treaty of Cahuenga brought the city and California Alta under a new government, the United States of America. California remained a territory of the United States until 1850 when statehood was achieved. During these years armies of gold seekers came to California on rumors of gold and this resulted in the drift of a vicious disappointed element to Los Angeles.

The country first became devoted to cattle raising. Agriculture began, slowly, to take the place of live stock raising as a major industry, but was restricted due to the lack of water. In 1860 the first telegraph line came to the city. In 1868 the first bank was opened. In 1869 San

Pedro and the harbor-to-be were connected to the city by rail. Then in 1876, a most important factor in the history of Los Angeles occurred—the first railway came to Los Angeles. In 1885 the Santa Fe followed the Southern Pacific.

By 1870, Los Angeles had a population of 5000. The coming of the first railway had caused the population to double by 1880. During the next ten years the population increased to 50,000; many of them had taken advantage of the railway rate wars which were reported to have made it possible for immigrants to come from the Middle West to Los Angeles for fares as low as one dollar. In 1885, the local residents began extensive planting of fruit and the Chamber of Commerce began displaying the local agricultural products throughout the United States at fairs and expositions. Literature of all kinds, describing the climatic and tourist attractions was mailed, and this partially offset the

AREA OF THE CITY OF LOS ANGELES (shown in white) AS COMPARED TO THAT OF THE COUNTY.



collapse of the real estate boom. The first influx of Easterners to the local area was attracted solely by booms in real estate, but with return to normal and the dropping off of tourist trade, in 1888 a general depression set in. By 1900 the population had again doubled to more than 100,000.

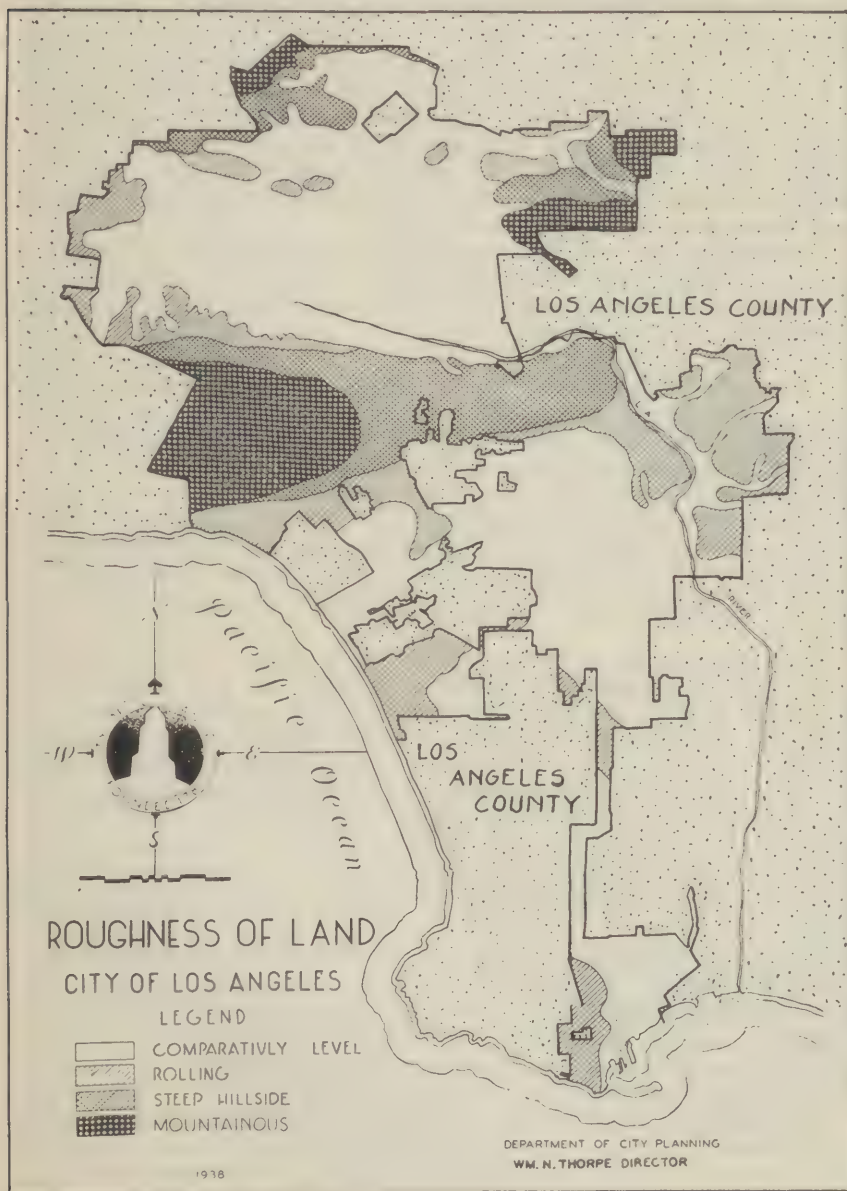
In 1899 with the first actual work on the deep-water harbor an extensive foreign trade program was begun. During 1899 and 1900 a boom in oil began and carried on to such an extent that today the production of crude oil and its refining is the leading industry. Los Angeles' second industry, motion pictures, got its start in 1910. Industrially, Los Angeles has grown until it is the fifth among United States counties. It is a leader in airplane production, automobile and accessory production, in tire, furniture, wearing apparel, printing and publishing, and meat packing. Culturally, Los Angeles is growing as rapidly as it is industrially. Science, art, music and literature are not only encouraged but much artistic work of world renown is produced here, all of which should tend to make Los Angeles a city of balanced prosperity.

Physical Characteristics

The site of the present-day city of Los Angeles occupies the northern portion of the "Great Valley of Southern California" and the comparatively small San Fernando Valley immediately adjacent to the north and located between lesser chains of Coast Range of mountains. The Great Valley of Southern California actually is a triangular shaped coastal plain bounded on the north and east by lesser chains of the Coast Range of mountains and on the west by the Pacific Ocean, the coast line running southeast to northwest. The center of the present-day city is the site of the original settlement and is fourteen to twenty miles inland from the ocean, along the banks of the Los Angeles River and is closely bordered on the east and north by mountain chains. The area between the center of the city and the ocean, and spreading broadly to the south and east, is essentially a broad, flat or gently rolling, fertile coastal plain. The north central part of the present incorporated area of the city of Los Angeles comprises steep hills for most part, becoming mountainous on the westerly side. The north portion of the city's incorporated area comprises a large part of a broad fertile valley, the San Fernando Valley, located between two smaller chains of the Coast Range Mountains, and constituting the drainage basin of the Los Angeles River.

The climate of the Los Angeles area is modified oceanic; for more than three-quarters of the year the prevailing winds are ocean breezes from the west and southwest. The ocean waters off the California coast are quite deep and are characterized by a current moving southward from the Arctic, having an annual temperature range of from around 45 degrees to about 55 degrees Fahrenheit. In the coastal waters off the Great Valley of Southern California there is, however, a warm, northward-moving Mexican current flowing close inshore which exerts a considerable climatic influence on that area, while the cold southward moving current flows further offshore in the latitude of Los Angeles. The effect of these currents participates in giving rise to the high night and morning fogs which are fairly prevalent, particularly in the late spring and summer months, and in tempering extreme variations of

temperature throughout the year. Except in the mountainous portions the total annual precipitation is light throughout the area; about 75 per cent of the total annual precipitation occurs in the wet season during winter months. Because of the light precipitation there are no large streams. The principal stream is the Los Angeles River, which for most part of the year presents a virtually dry stream bed, although a certain amount of subsurface flow obtains the year round.



In the Los Angeles area, there is a comparatively small amplitude of temperature range and the region has one of the most equable climates in the United States. The summers are usually rainless and moderately warm; the winters are mild with occasional rain storms but some sunshine is received almost every day. Frosts are of rare occurrence and thunderstorms are uncommon. Snow never falls. The northern and eastern part of the Los Angeles area falls within the climatic zone of maximum sunshine in the United States. Along the immediate coast, however, owing to frequency of high morning fogs in late spring and summer months, the sunshine received annually is about 60 per cent of the maximum possible. But proceeding inland in an easterly direction from the coast, this condition changes rapidly and within a distance of ten miles from the coast the percentage of sunshine received annually increases to 75 per cent of the maximum possible amount. Further to the east and north beyond the mountain chains which intervene, more than 85 per cent of the annual maximum possible sunshine is received each year.

Because of the equable year around temperatures, the regional light precipitation, soil fertility and ample water supply, this area has become a favored region and the seat of a large and rapidly growing population. The metropolitan district of which Los Angeles is the center, has a population of some two and one-half million people. The area also contains some of the largest and most valuable citrus groves in the United States. Most of the water used for agricultural and domestic purposes come from melting snows and rains on the high Sierra Nevada Mountains and the principal water supply of Los Angeles is carried through an aqueduct system a distance of 259 miles from Owen's Valley on the eastern slope of these mountains. There is now under construction a second great aqueduct and canal system which will bring an additional large supply of water to the southern part of Los Angeles area, derived from Parker Dam on the Colorado River.

According to the records of the United States Weather Bureau for the last sixty years, the annual rainfall in the Los Angeles area has varied from a recorded minimum of 4.83 inches in 1898 to a maximum of 40.29 inches recorded in 1884 with an average annual rainfall of 14.95 inches. The region occasionally experiences short periods of excessive precipitation, the maximum precipitation recorded in twenty-four hours being 5.12 inches. During the period of record, precipitation amounting to 0.01 inch or more in twenty-four hours occurred on an average of thirty-seven days each year, twenty-four of which were in the months of December, January, February and March.

The annual average temperature for the Los Angeles area is 62.7 degrees Fahrenheit, the annual average maximum temperature being 72.8 degrees Fahrenheit and the annual average minimum temperature being 52.6 degrees Fahrenheit. The average maximum temperature for the summer months is 82 degrees Fahrenheit and the average minimum temperature for the winter months is 46 degrees Fahrenheit.

The annual average relative humidity of the Los Angeles area ranges from 77 per cent at 8 a.m. to 61 per cent at 8 p.m., dropping to 57 per cent at noon and rising in the late afternoon and evening. The spring and summer months coinciding with the coastal fog preva-

lence, have a relative humidity somewhat higher than the annual average, while the fall and winter months present somewhat less than the average. This seasonal variation is more particularly noted in the morning periods.

Incorporated Area

The original site of the city "La Reina de Los Angeles" officially founded in 1781 by Colonel Felipe de Neve, Spanish Governor of California Alta, embraced the area surrounding old Plaza Park near the new Union Railway Depot and the park is stated to be the same plaza of those days. The site was about a mile upstream in a northerly direction along the banks of the river, from the site of the Indian settlement of some 300 Indians found in 1769 by de Portola and Crespi in their exploratory journey north from Old Mexico. The Spanish territorial grant for the original city comprised four square Spanish leagues, an area of 28 square miles and for nearly eighty years apparently it experienced only slow and modest growth.

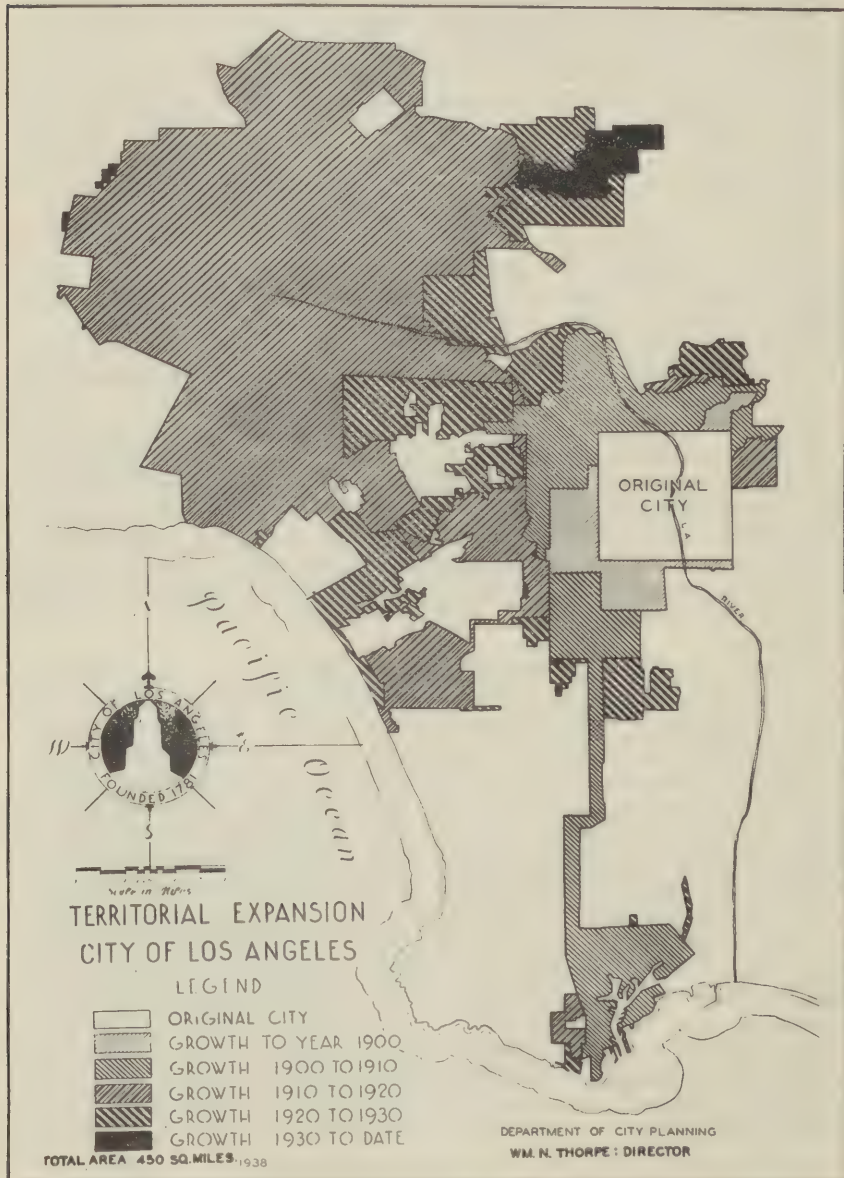
When California Alta became a territory of the United States following the conclusion of the Treaty of Cahuenga in 1847, the city rights under the Spanish grant to the area of the original city were retained. Following the acquisition of statehood by California in 1850, the limits of the city as described in the original Spanish grant were confirmed and recorded in articles of incorporation granted to the city by the state.

The first extension of the original incorporated area took place in 1859 through the annexation of 1.2 square miles, representing a narrow strip along its entire southern boundary. Between 1895 and 1899, four annexations of territory were made totaling 32 additional square miles, adding to the incorporated area of the city the Highland Park-Gervanza district and territory adjacent to the southern and western boundaries, so that with the opening of the twentieth century the total incorporated area within the city amounted to 43.26 square miles.

Toward the close of the nineteenth century, the city began to yearn also to be a seaport and in 1899 the first harbor development of the small inadequate natural harbor at San Pedro was begun. This culminated in 1906 in the annexation to city corporate area of the so-called "shoe-string," a narrow strip of territory approximately 18 miles in length and for most part approximately three-quarters of a mile in width extending from the then southernmost boundary of the city southward to the northern limits of the town of San Pedro which had developed in the vicinity of the small, natural and exposed harbor serving the area. This was followed in 1909 by the consolidation with the corporate area of Los Angeles of the towns of Wilmington and San Pedro. These towns, together with the shoe-string, added some 33 square miles of territory to the incorporated area and made the city of Los Angeles, in fact, a seaport. In 1910 the corporate territory was further enlarged through the annexation of the growing communities of Colgrove and East Hollywood and the consolidation of the town of Hollywood, bringing the total corporate area up to 100.72 square miles. So far the expansion of the corporate area was

due to the desire for access to the sea and seaport facilities, plus consolidation of neighboring residential communities.

During the period 1910 to 1920, the growth of the corporate area followed along similar lines through the annexation or consolidation of adjoining communities which were building up and through enlargement of the seaport area similarly. However, from a territorial standpoint, the most material enlargement took place in 1915 through



the annexation of almost the entire San Fernando Valley comprising 170 square miles of territory, most of which was then agricultural. This annexation had as its motivation the assurance to the city of undisputed use of the sub-surface water rights in the San Fernando Valley basin which was drained by the Los Angeles River and which river was up until then the principal source of the public water supply of the entire area. The annexation of the area known as Westgate, comprising 48.67 square miles in the Santa Monica Mountain area likewise was motivated largely by safeguarding of the city water supply interests as sites for high level reservoirs. By 1920, the total corporate area of the city had been extended by such annexations to 363.85 square miles.

The decade from 1920 to 1930 was characterized by many annexations and consolidations of similar communities and areas so that by 1930 the total corporate area of the city was 441.26 square miles. Similar expansion at a slower rate has taken place in the current decade so that in 1939 the total incorporated area of the city of Los Angeles is 450.75 square miles.

Anyone viewing the present-day map of the incorporated area of the city of Los Angeles can not but be impressed with its bizarre pattern. Here and there are found small unincorporated "islands" of county territory entirely surrounded and engulfed by incorporated territory of the city. Also here and there are towns preserving their own corporate entity, which similarly are surrounded by the incorporated area of the city. The growth of the city presents amoeboid characteristics. This entire area, both within and outside of the incorporated limits of the city of Los Angeles, really constitutes a vast actively growing metropolitan district and the amoeboid absorption of adjacent communities probably can be accepted as being logical. However, aside from consolidating growing communities of a metropolitan district into one great city, the other two principal motivations for the enlargement of the corporate area to its present great and unwieldy size has been due to the acquisition of seaport facilities and the preservation and safeguarding of the city's public water supply interests. These two latter reasons account for the annexation of approximately 200 of the total of 450 square miles of the present corporate territory of the city.

Population Characteristics

When the city of Los Angeles was officially found in 1781, its population probably did not exceed 500, including the population of some 300 native Indians in their previously established settlement. The population other than those Indians consisted principally of the mission retinue and the military garrison. History is nebulous regarding its earlier colonization and growth, but such must have been quite slow as the population enumerated at time of its incorporation as a city of the new State of California in 1850 was 1,610 souls. The references found concerning the city between 1781 and 1850 describe the settlement as "a sleepy, little pueblo."

Not the least unusual thing about the city of Los Angeles has been its phenomenal growth in population since its incorporation in 1850. The following table shows the population of the city of Los

Angeles for each census year from 1850 to 1930, as well as the number and per cent of increase in the population between succeeding census years.

Population of the City of Los Angeles for Each Decennial Census Year, and the Number of Persons and Percentage Gain in Population Each Census Year Over the Previous Census Year for the Period 1850-1930

Decennial Census Year	Population	Increase Over Preceding Census	
		Number	Per Cent
1850 -----	1,610	-----	-----
1860 -----	4,385	2,775	172.4
1870 -----	5,728	1,343	30.6
1880 -----	11,183	5,455	95.2
1890 -----	50,395	39,212	350.6
1900 -----	102,479	52,084	103.4
1910 -----	319,198	216,719	211.5
1920 -----	576,673	257,475	80.7
1930 -----	1,238,048	661,375	114.7

As can be readily seen in the foregoing table, the city has grown fairly consistently, at a phenomenal rate. In all but three of the ten-year periods the city has more than doubled in population, and in one period it more than tripled in size. It is true that this growth can be attributed to some extent to annexations and consolidations of growing adjacent communities, but of the 83 additions to the city from the year of its original incorporation in 1850 to 1935, only 10 were consolidations with other incorporated municipalities. Virtually all the other additions were by annexation of unincorporated territory which was rural or mountainous in character with small populations. In the former instances the city may be considered to have extended its boundaries to include people who really were a part of the economic and social sphere of influence of the city of Los Angeles.

The entire general area of which Los Angeles is the center, does in fact constitute today a metropolitan district. The following table illustrates the situation.

Population of the City of Los Angeles and the Metropolitan District, With Land Area and Population per Square Mile—1930

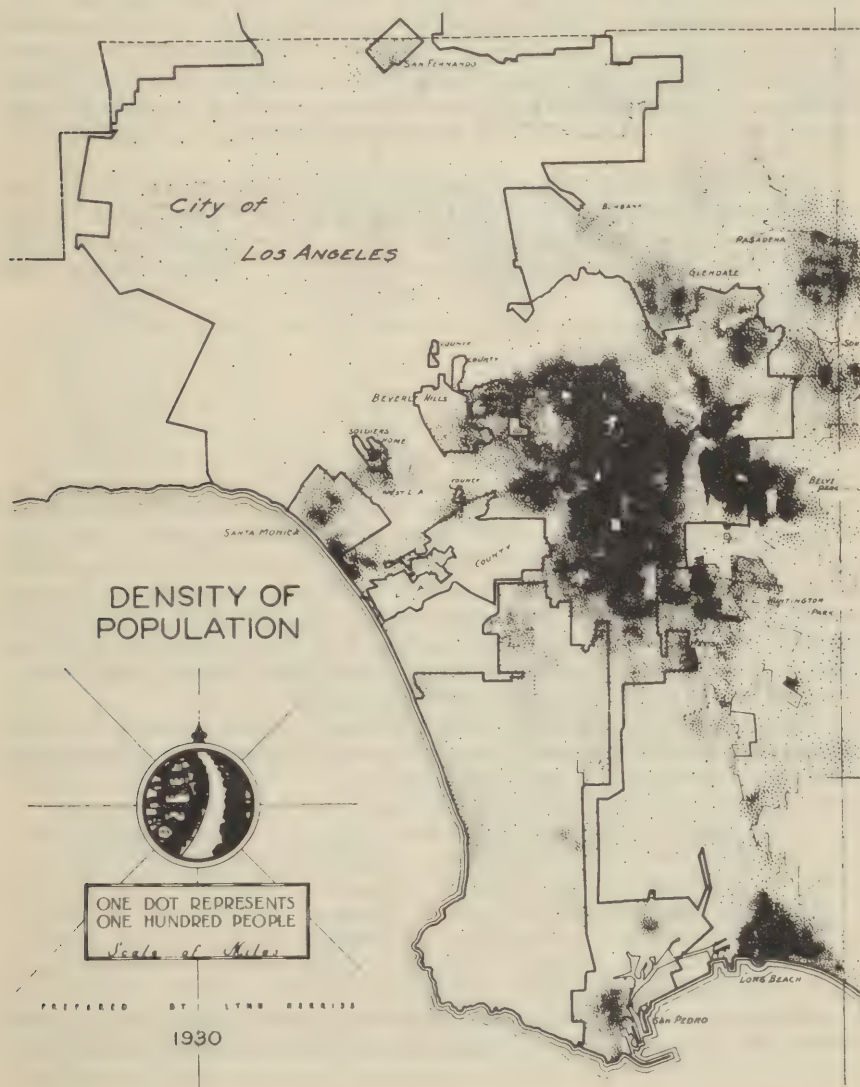
Area	Population	Land Area in Square Miles	Population per Square Mile
Los Angeles city-----	1,238,048	440.32	2,811.7
Outside of city *-----	1,080,478	1,034.02	1,044.9
Metropolitan district -----	2,318,526	1,474.34	1,572.6

* Includes civil divisions contiguous to Los Angeles having a population density of 150 or more persons per square mile.

The area of the metropolitan district is over three times as large as the incorporated area of the city of Los Angeles proper, and the total population of the district is almost double that of the city. Included in the district are 55 other incorporated towns, in addition to the city of Los Angeles, having a combined population of 738,774; and also unincorporated areas having a total population of 341,704. The boundary of the metropolitan district extends into Orange County to include ten incorporated cities, and into San Bernardino County to include two more incorporated cities, as well as unincorporated territory in both these counties. It is readily apparent from this that in spite of the

immensity of the corporate territory of the city of Los Angeles, it still only includes about a half of the urban population living in this population center known as the Los Angeles Metropolitan District.

As is well known to most people in this and many other countries, the development of the city of Los Angeles is unique in many respects. At the time of the 1930 U. S. Census, Los Angeles ranked fifth largest in order of population among the cities of the United States, while it ranked first among all cities of the nation in area included within corporate boundaries. The peculiar characteristics of the corporate area have been previously discussed; while it includes 450.75 square miles or 288,480 acres of territory, a very considerable portion thereof is not adapted to urban type of development and habitation, consequently



figures showing present average density of population derived from comparison of corporate area with population, are misleading particularly when similar comparisons are made with other cities, as for instance, New York; New York City has approximately seven and one-half million population and a corporate area of 191,360 acres or about 300 square miles giving an average population density of 40 persons per acre or 25,600 per square mile, while the city of Los Angeles has approximately one and one-half million population and a corporate area of 288,000 acres or about 450 square miles, giving an average population density of 6 persons per acre or 3,840 per square mile. However, approximately 50 per cent of the corporate area of Los Angeles is sparsely populated mountainous terrain or as yet definitely agricultural land, such as in San Fernando Valley. In addition there are rather vast areas of undeveloped and practically as yet uninhabited land. Only about 25 per cent of the total corporate area at present represents urban type of population density and the density of population in this portion reaches about 20 persons per acre or 13,800 per square mile, or about one-half the average density of population in New York City.

It is to be expected that the rapidly growing population of the city of Los Angeles has been recruited from all parts of the United States, and in fact, from many parts of the world. This supposition is borne out by the following figures obtained from the United States 1930 census publications:

Place of Birth of Los Angeles Residents	Per Cent of Total
California	20.3
Other states of the U. S.	58.7
Foreign born	20.0

With almost 60 per cent of the population of the city of Los Angeles coming from other states than the State of California it would be expected that many states would have large representations. Twenty-one states were represented by 10,000 or more persons in Los Angeles in 1930. Illinois was claimed as the place of birth by the greatest number, which was 72,933. The ten states contributing the most people to Los Angeles in order of the number coming from each at the time of the 1930 census were: Illinois, Missouri, New York, Ohio, Iowa, Texas, Pennsylvania, Kansas, Indiana, and Michigan.

There were 247,135 foreign-born persons in Los Angeles at the time of the 1930 census. The ten foreign countries in which the greatest percentages of these were born are as follows:

Country of Birth	Percentage of Total Foreign Born	Country of Birth	Percentage of Total Foreign Born
Mexico	21.7	Italy	5.1
Canada	12.5	Japan	4.8
England	9.0	Sweden	3.6
Russia	8.0	Scotland	2.8
Germany	7.3	Poland	2.8

At the time of the 1930 census the foreign white stock (foreign-born white, and those with one or both parents foreign-born) amounted to

455,556 persons. The five countries represented by the greatest percentages of these are as follows:

Country	Per-Cent	Country	Per Cent
Germany -----	15.8	Russia -----	9.2
Canada -----	13.1	Italy -----	6.5
England -----	12.1		

In the following table, the distribution of the population of Los Angeles by color or race is shown for the census years 1920 and 1930. It is interesting to note that the percentage distribution by race or color remained fairly constant even though the population of the city more than doubled in that ten-year period. Among those color or racial groups that constituted more than 0.1 per cent of the population of the city of Los Angeles in both 1920 and 1930, the Mexicans and the Negroes are the only groups that showed higher percentages of the total population in 1930 than in 1920. Considering all color and racial groups shown in the table, however, the Filipinos showed the greatest percentage increase in the ten-year period.

Distribution of the Population of the City of Los Angeles by Race at the Time of the 1930 and 1920 Census

Color or Race, and Nativity	1930		1920	
	Number	Percentage	Number	Percentage
Total-----	1,238,048	100.0	576,673	100.0
White-----	1,073,584	86.7	517,107	89.7
Native-----	891,736	72.0	425,385	73.8
Foreign-born----	181,848	14.7	91,722	15.9
Negro-----	38,894	3.1	15,579	2.7
Mexican-----	97,116	7.8	29,757	5.2
Japanese-----	21,081	1.7	11,618	2.0
Chinese-----	3,009	0.2	2,062	0.4
Filipino-----	3,245	0.3	253	*
Indian-----	616	*	189	*
Other races-----	503	*	108	*

* Less than 0.1 per cent.

It is generally considered that in order for a racial group to materially affect the vital statistics or other characteristics of a community it must constitute at least 5 per cent of the total population. Using that arbitrary figure it is obvious that the Mexican population of Los Angeles is the only racial group which definitely warrants special mention apart from the total population. However, the Negro population constitutes 3.1 per cent and, as a general rule, the Negro race in the United States is found to present problems that differ in relative importance from those of the general population. Furthermore, both groups in these numbers warrant special note since both more or less are concentrated in definite parts of the city.

In the following table is shown the percentage distribution of the population of Los Angeles by age, as compared with that for the United States and the State of California. It is readily seen in the table that the age distribution of the population of Los Angeles differs very definitely from that of the United States, and to a lesser extent, from that for the state as a whole. The population of Los Angeles shows definitely lower percentages of its population in the infant, childhood, and adolescent age groups than does the United States as

a whole. Beginning with the age group 25 to 29 years and in successive older age groups, however, the population of Los Angeles shows much higher percentages than does the United States as a whole, up to 80 years of age, after which the percentage is about the same. The same relationship is found in comparing the population of Los Angeles to that of the state as a whole, except that the city percentage first exceeds the state percentage in the age group 20 to 24 years, and they have approximately the same percentages beginning with the age group 55 to 59 years.

Percentage Distribution of the Population of the United States, State of California, and the City of Los Angeles by Age—1930 Census

Age Group	United States	California	City of Los Angeles
All ages-----	100.0	100.0	100.0
Under 1 year-----	1.8	1.3	1.2
Under 5 years-----	9.3	7.1	6.4
5- 9 years -----	10.3	8.2	7.0
10-14 years -----	9.8	7.5	6.3
15-19 years -----	9.4	7.6	6.8
20-24 years -----	8.9	8.4	8.8
25-29 years -----	8.0	8.7	9.9
30-34 years -----	7.4	8.5	9.4
35-39 years -----	7.5	8.6	9.3
40-44 years -----	6.5	7.8	8.2
45-49 years -----	5.7	6.9	7.2
50-54 years -----	4.9	5.8	6.1
55-59 years -----	3.8	4.5	4.6
60-64 years -----	3.1	3.7	3.7
65-69 years -----	2.3	2.7	2.7
70-74 years -----	1.6	1.9	1.8
75-79 years -----	0.9	1.0	1.0
80-84 years -----	0.4	0.5	0.5
85 years and over-----	0.2	0.3	0.2
Unknown -----	0.0	0.3	0.1

The sex distribution of the population of Los Angeles at the time of the 1930 census and the 1920 census, as compared to the State of California and the United States, is shown in the following tabulation:

	Males per 100 Females	
	1930	1920
Los Angeles -----	97.3	97.8
California as a whole-----	107.6	112.4
California—Urban -----	101.4	104.4
United States as a whole-----	102.5	104.0
United States—Urban-----	98.1	100.4

There is obviously a difference in the sex distribution of the population of both the State of California and the United States between urban and rural areas. Males exceed females in the general population but there is a tendency for the female population to concentrate in urban communities. This tendency is exaggerated in Los Angeles, since the excess of females existed in both 1930 and 1920. California cities as a whole, still showed males exceeding females in numbers in the 1930 U. S. census, but a definite change of trend in these statistics was taking place as shown in the U. S. census both for 1920 and 1930.

To summarize the above discussion of population characteristics for the city of Los Angeles, it may be said that at the time of the U. S. 1930 decennial census, the population of Los Angeles was predominantly white and middle aged, with the number of females exceeding the number of males. The only racial groups present in sufficient numbers to significantly affect the characteristics of the city as a whole are the Mexicans, and possibly the Negroes. It is interesting to note in passing that in spite of the excessive number of females of child-bearing age, there are low percentages of the population in the childhood age groups. This portends a low birth rate.

Plan of Government

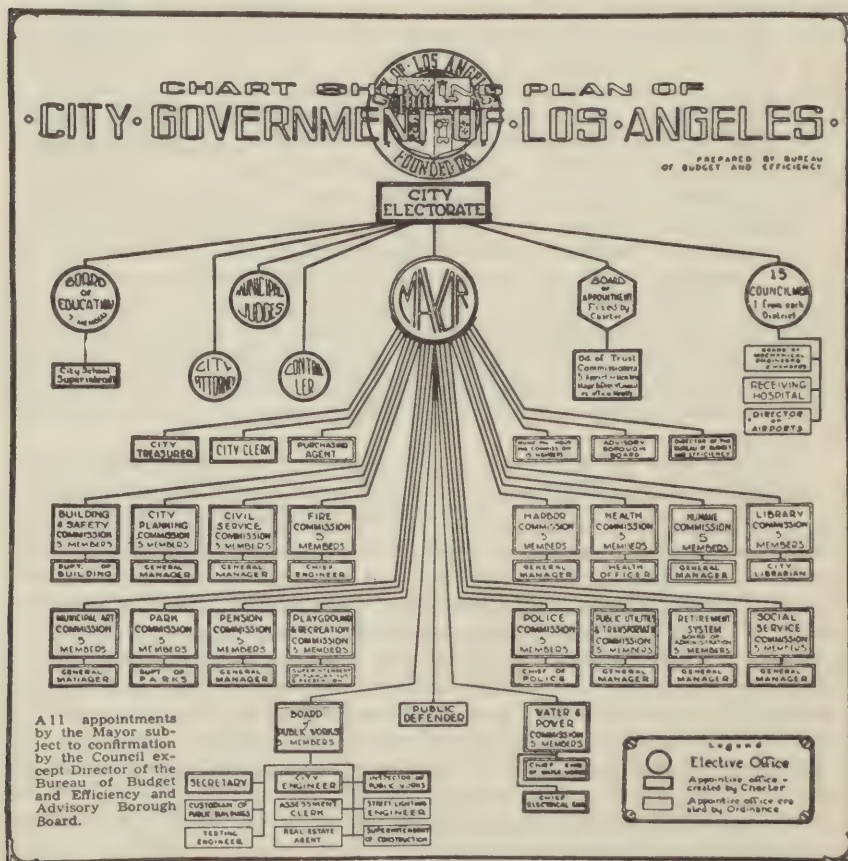
The city of Los Angeles is incorporated under the laws of the State of California and operates under a charter granted January 22, 1925. This city charter is in effect a city constitution which broadly sets forth the general plan of the government and defines its responsibilities and rights as well as its authority. Certain sections of the charter will be cited in the following discussion as being of particular significance for the purposes of this survey.

The right to the fullest measure of local self-government is conferred in section 2 of the charter; the autonomy of the city government is unrestricted in all matters excepting those coming within the scope of the constitution and general laws of the State of California. This section authorizes the city government (a) to enforce federal and state laws and to promote the peace, health, safety and welfare of the people and to license and regulate uniformly any lawful business or calling, within its corporate limits, (b) to make, and to enforce within its corporate limits, all such local police, sanitary, safety, welfare and other regulations as may be required and to exercise such powers, in such manner as may be authorized by state law, outside of its corporate limits in matters affecting the people within the city, (c) to cooperate with the governments of other cities, counties, and the state and federal government, within the powers of the city, (d) to transfer functions of the city government to, or consolidate with, appropriate functions of the state or county government, (e) to assess, levy, collect and enforce taxes within authorized limits and to impose license fees on lawful business or callings, within the corporate limits of the city.

The charter provides for the legislative, executive and judicial functions of the city government as follows. The legislative, including the appropriating and taxing, function is vested in the city council comprised of fifteen members, each of whom is elected from a councilmanic district of the city to office for a term of two years. The city council selects one of its members as its president and the president of the council becomes acting mayor in the absence or disability of the mayor. The charter provides for the approval or veto by the mayor of ordinances passed by the city council and the concurrence of the city council in all appointments made by the mayor to the appointive offices and its approval of annual budgets prepared and submitted by the mayor. The executive function is vested in the office of the mayor, who is elected to office from the city-at-large for a term of four years, and directed by him through some twenty administrative departments, each of which is supervised by a five-

member commission and administered by an executive head. All commissioners are appointive offices for five year staggered terms authorized by the charter, while the majority of heads of departments are civil service. In addition the charter provides the appointive administrative offices of treasurer, city clerk, purchasing agent, public defender, director of the bureau of budget and efficiency, all of which are subject to civil service, and an advisory borough board. The judicial function is vested in the municipal judges and the office of city attorney, all of whom are elected to office from the city-at-large for a term of four years.

In addition, the charter sets up the independent office of city comptroller, who is elected from the city-at-large for a term of four years, and the independent board of appointment whose members are elected from the city-at-large; the board of appointment appoints the five members of its subordinate board of trust commissioners of which the mayor and the president of the council are additional ex officio members. Public education is also set up under the charter as an independent function, administered by a seven-member board of education, three of whom are elected to office for staggered terms of four years and four of whom are elected to office biennially for terms of two years. The board appoints the executive head of the city schools.



It is of interest to observe that the city council has enacted unto itself certain appointive offices and functions that appear to be usually executive in character; the city council operates a city emergency or receiving hospital and maintains a board of mechanical engineers and a director of airports.

The annual salary of the mayor and the city attorney is \$10,000 each; the annual salary of the city comptroller is \$7,200; the annual salary of each councilman is \$4,800 for full time service (the council meeting regularly five days each week). All commissioners receive compensation at the rate of \$5 per meeting attended; a minimum of two meetings per month is prescribed and the maximum payment per member allowed is \$50 in any one calendar month.

All officers and employees of the city government, other than those prescribed by charter to be (a) elective, or (b) appointive, and positions created by ordinance of the council and designated to be appointive, are civil service employees whose eligibility for selection to the position, and whose tenure, is administered by an executive department of the city government, the civil service commission, designed on the merit system. It is regarded as preferred that the administration of civil service be accomplished by an independent board of civil service commissioners whose members are responsible directly to the electorate, rather than by a department of the executive branch.

Under the charter the board of civil service commissioners is authorized to make rules and regulations governing the classification of nonelective and nonappointive positions in the city government, the holding of competitive examinations for the establishment of lists of eligibles for appointment to such positions and to provide for promotions within the civil service. Appointments to positions are made from lists of eligibles submitted to department heads by the board. A person establishing eligibility for appointment continues in that status until he has had opportunity for selection not less than three times; however, eligibility for appointment is not valid for a longer period than three years. The charter provides that the boards of commissioners of the various departments of the city government may remove, discharge, or suspend any member of the department's personnel, provided that no person in the classified civil service of the city shall be so removed, discharged, or suspended except for cause which must be stated in writing and which must be reviewed by the board of civil service commissioners who shall hold a hearing on the case, and the ultimate findings of the board of civil service commissioners regarding reinstatement or discharge of a civil service employee is final and binding upon the department concerned. Under the charter, however, certain positions are exempt from civil service provisions.

The following are exempt from civil service provisions:

- a. All officers elected by the people.
- b. All members of the several boards.
- c. The secretary to the mayor.
- d. The city engineer and his chief deputy.
- e. Chief deputy of the comptroller.
- f. City superintendent of schools and assistants, deputies, teachers and employees in the school department.

- g. Assistants, deputies, clerks, stenographers of city attorney.
- h. City prosecutor and his assistants.
- i. Chief engineer of department of public utilities and transportation.
- j. Traffic manager, port warden.
- k. Inspector of public works.
- l. General manager of humane treatment of animals.
- m. General manager of public utilities and transportation.
- n. General manager of water and power.
- o. All physicians appointed by the health board.
- p. All officers of election.
- q. Police surgeon and assistant police surgeons.
- r. Employees of advisory borough boards.
- t. Employees of department of trusts.
- u. Employees of housing commission.

The plan of organization prescribed by the charter and common to the various executive departments (including the health department) is of the following general pattern. Each department is supervised by a five man board of commissioners appointed for five year staggered terms—one new member being appointed each year. Commissioners' appointments and removals are made by the mayor subject to approval by a majority of the city council. Each board of commissioners annually select one of their members as its president, and one as its vice president. Regular meetings are required to be held semi-monthly. Each board is authorized to select for appointment a secretary and a chief accountant—but the chief accountant may also be the secretary of the board. The board of commissioners is authorized to select for appointment, subject to civil service regulations, the chief administrative officer, or the executive head, of the administrative department over which it exercises supervision and to fix his rate of compensation (subject to approval by the mayor). However, in 1937, an exceptional departure from these common charter provisions was ended as regards the office of city health officer administering the city health department, which was changed from an appointive office to that of a civil service position and the then incumbent city health officer acquired permanent civil service status. The charter further authorizes boards of commissioners to make and enforce all necessary or desirable rules and regulations for the government of their respective departments and for the purpose of carrying out the duties and responsibilities, and exercising the powers vested in the department by virtue of the city charter or councilmanic ordinance. The charter provides that boards of commissioners shall exercise these powers by order or resolution concurred in by a majority of its members and recorded by the secretary in the minutes of the meeting such action was taken. Such orders or resolutions are required to bear the signature of the president and vice president of the board, or two of the board members, and counter-signature by the secretary to the board.

The following table, listing the various departments and agencies of the city government, is made to bring out certain special differences in their respective status. Eight of the departments are self-governing as regards budgets, appointments, revenue, etc.; three of the eight, and part of the fourth, have their apportionment of general taxes

collected, fixed by charter; two others are independently supported in part by revenue derived from their activities, and in part (so much as necessary to assure their activities) by mandatory (charter) council appropriations of funds derived from general taxes.

Name	Head of department	Financial support	Responsibility	Activity
Building and Safety	Civil Service	Council appropriation from general taxes	To the mayor	Building construction and alteration, equipment, etc.
City planning	Civil Service	Council appropriation from general taxes	To the mayor	Zoning, public improvements.
Civil Service	Civil Service	Council appropriation from general taxes	To the mayor	Personnel
Fire	Civil Service	Council appropriation from general taxes	To the mayor	Fire protection
Health	Civil Service	Council appropriation from general taxes	To the mayor	Public health
Humane	Civil Service	Council appropriation from general taxes	To the mayor	Animal regulation
Art	Civil Service	Council appropriation from general taxes	To the mayor	Public works of art, artistic design of public structures
Police	Civil Service	Council appropriation from general taxes	To the mayor	Peace and order
Public utilities and transportation	Civil Service	Council appropriation from general taxes	To the mayor	Service and rates
Social service	Civil Service	Council appropriation from general taxes	To the mayor	Welfare and public charity
Public works	Civil Service	Council appropriation from general taxes also tax apportionment by charter	To the mayor	Public construction and improvements
Housing	Appointed	Self supporting	Independent	Housing standards
Harbor	Civil Service	Special tax, also appropriation from general taxes	Independent	Tide lands and harbor improvements
Library	Civil Service	Apportionment from general taxes—by charter	Independent	Public libraries
Park	Civil Service	Apportionment from general taxes—by charter	Independent	Public parks
Playground and recreation	Civil Service	Apportionment from general taxes—by charter	Independent	Public beaches and mountain resorts, recreation centers
Retirement	Appointed	Self-financed and apportionment from general taxes—by charter	Independent	Employee retirement
Pension	Civil Service	Self-financed and apportionment from general taxes—by charter	Independent	Police and firemen's benefits
Water and power	Appointed	Self-financed	Independent	Public water supply and electricity
Mechanical engineers	Civil Service	Council appropriation from general taxes	City council	Mechanical equipment for construction work
Airports	Civil Service	Council appropriation from general taxes	City council	Municipal airport
Receiving hospital	Appointed	Council appropriation from general taxes	City council	Emergency hospital; primarily for police and firemen
Education	Appointed	Direct tax	Electorate	Public schools
Trust	Appointed	Support derived from proceeds of bonded debt	Electorate	Public indebtedness
Courts	Elective	Council appropriation from general taxes	Electorate	Justice
City attorney	Elective	Council appropriation from general taxes	Electorate	Public prosecutor
Comptroller	Elective	Council appropriation from general taxes	Electorate	Audit
Budget	Civil Service	Council appropriation from general taxes	Mayor	Budget and efficiency
Treasurer	Civil Service	Council appropriation from general taxes	Mayor	City funds
Purchasing agent	Civil Service	Council appropriation from general taxes	Mayor	Supplies
City clerk	Civil Service	Council appropriation from general taxes	Mayor	Clerical details

The charter of the city of Los Angeles was amended in 1927 to set up a department of pensions in the city government for the benefit of firemen and policemen disabled in line of duty, superannuated or eligible to voluntary retirement for length of service, and for their dependents if killed in line of duty. The system is funded through 4 per cent salary deductions and the mandatory appropriation annually from general tax receipts of sufficient funds to meet the financial needs of the system.

In 1937, the charter was further amended to set up a department for the retirement of civil service employees of the city government who become disabled, superannuated or eligible to voluntary retirement for length of service and with death benefits for their dependents, which became effective July 1, 1939. The civil service retirement system is funded through determined rates of salary deductions and the mandatory appropriation annually from general tax receipts of sufficient funds to meet the financial needs of the system.

The charter prescribes the duties and powers of the chief administrative officer, or executive head, of a department to comprise responsibility for (a) administration of the department in accordance with applicable federal and state laws, ordinances of the city council, orders and resolutions of the board of commissioners and regulations adopted by them for the administration of the department; (b) annual preparation of the department's proposed budget together with underlying plans and program of its activities; (c) to restrict expenditure of appropriations according to underlying approved budgets; (d) to certify all expenditures of the department; (e) to prepare an annual report of the department's activities; (f) to appoint, suspend, discharge, or transfer subordinate employees in the department, subject to the provisions of the civil service.

City Finance

The city charter prescribes in section 3 that the maximum annual tax rate that may be levied by the city government for all municipal purposes (exclusive of provision for the payment of principal and interest of municipal bonded indebtedness, pensions, borough taxes and the payment of principal and interest of indebtedness incurred by special improvement districts authorized under the laws of the State of California) shall not exceed \$1.25 per \$100 of assessed valuation of all taxable property located within its corporate area.

The function of assessing the fair market value of all taxable property located within the corporate area and the function of the annual collection of the municipal tax laid thereon, each is accomplished respectively by the assessor's office and the tax collector's office of the Los Angeles County government, which functions have been transferred to those agencies under the authority contained in the charter authorizing the city government to transfer any of its functions to, or consolidate with, any appropriate similar function of the state or county governments. The city council by ordinance has prescribed that the taxable valuation of all taxable property located within the corporate area of the city shall be 50 per cent of its assessed value as determined and certified by the assessor of Los Angeles County.

Taxable property is classified as (a) operative (such as public utilities operating under a franchise to use streets, etc.); (b) nonoperative, having subclasses: 1. Real property consisting of land and improvements thereon; 2. Personal property other than real. The following table shows the assessed (charter) valuation and the taxation (ordinance) valuation of all classes of taxable property in the city of Los Angeles for the fiscal year ended June 30, 1938.

Class of Property	Assessed Valuation (Charter)	Taxation Valuation (Ordinance)
A. Operative -----	\$244,860,020	\$122,430,010
B. Nonoperative		
1. Real property		
(a) Land -----	1,216,890,830	608,445,415
(b) Improvements -----	906,621,132	453,310,566
2. Personal -----	225,840,138	112,920,069
Total -----	\$2,558,212,120	\$1,279,106,060

The city charter specifically limits the bonded indebtedness that may be incurred by the city government for general municipal purposes to a maximum of 3 per cent of the assessed valuation of taxable property located within the corporate limits of the city and prescribes that provision for the annual amortization and the payment of interest on such outstanding bonded indebtedness shall be provided for from the revenue produced by the city tax laid annually on all taxable property located within the corporate area of the city. However, the charter also authorizes the city government to incur additional bonded indebtedness for revenue producing, self-liquidating activities to a maximum of 12 per cent of the assessed valuation of all taxable property within the corporate area; the revenue to be produced by activities (such as public utilities) financed in whole or in part under this provision of the city charter, must be sufficient to provide therefrom for the annual prorata amortization of, and the annual interest payments on, such outstanding bonded indebtedness. However, the city charter provides that self-liquidating bonded indebtedness for revenue producing activities may be excluded from such limitation of the total amount to 12 per cent of the assessed valuation of all taxable property, whenever any such public utility should be determined by the City Council and proclaimed by ordinance to be self-sustaining and the ordinance approved by a majority of the voters voting thereon at an election. Up to the present, the city council has taken advantage of this provision of the charter only for the city department of water and power which appears to qualify for the exclusion of the bonded indebtedness incurred for its later financing from the charter limitation on total bonded indebtedness.

The following table presents a brief summary of the status of the bonded indebtedness of the city of Los Angeles as of the fiscal year ended June 30, 1938. It will be noted that the bonded indebtedness of the city as of June 30, 1938, amounts to 78.1+ per cent of the sum permissible under the council's modification of the charter limit, or to 39+ per cent of charter limits.

1. Taxable Property Valuation:

(a) Fair market valuation of taxable property as assessed by county assessor (charter) -----	\$2,558,212,120.00
(b) Taxable valuation, 50 per cent of assessed valuation (ordinance) -----	1,279,106,060.00

2. Bonding Capacity for General Purposes:

(a) Limit permissible (based upon 3 per cent of taxable valuation) -----	38,373,181.80
(b) Bonds outstanding -----	35,860,862.09

(c) Unused bonding capacity for general purposes (based upon ordinance) -----	\$2,512,319.71
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3. Self-liquidating Project Bonds (revenue producing public utilities):

(a) Limit permissible (based upon 12 per cent of taxable valuation) -----	\$153,492,727.20
(b) Bonds authorized and outstanding:	
Harbor -----	\$17,741,000.00
Water -----	65,069,500.00
Power -----	28,539,000.00

*Less funds for amortization:	\$111,349,500.00
Water -----	\$1,194,631.36
Power -----	1,164,285.75
	2,358,917.11

Net—Bonds authorized and outstanding -----	\$108,990,583.89
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(c) Bonds authorized and not issued (power) -----	3,000,000.00
---	--------------

111,990,583.89

(d) Unobligated bonding capacity for self-liquidating projects (based upon ordinance) -----	\$41,502,143.31
Plus cancellation of authority—item 3 (c) -----	3,000,000.00

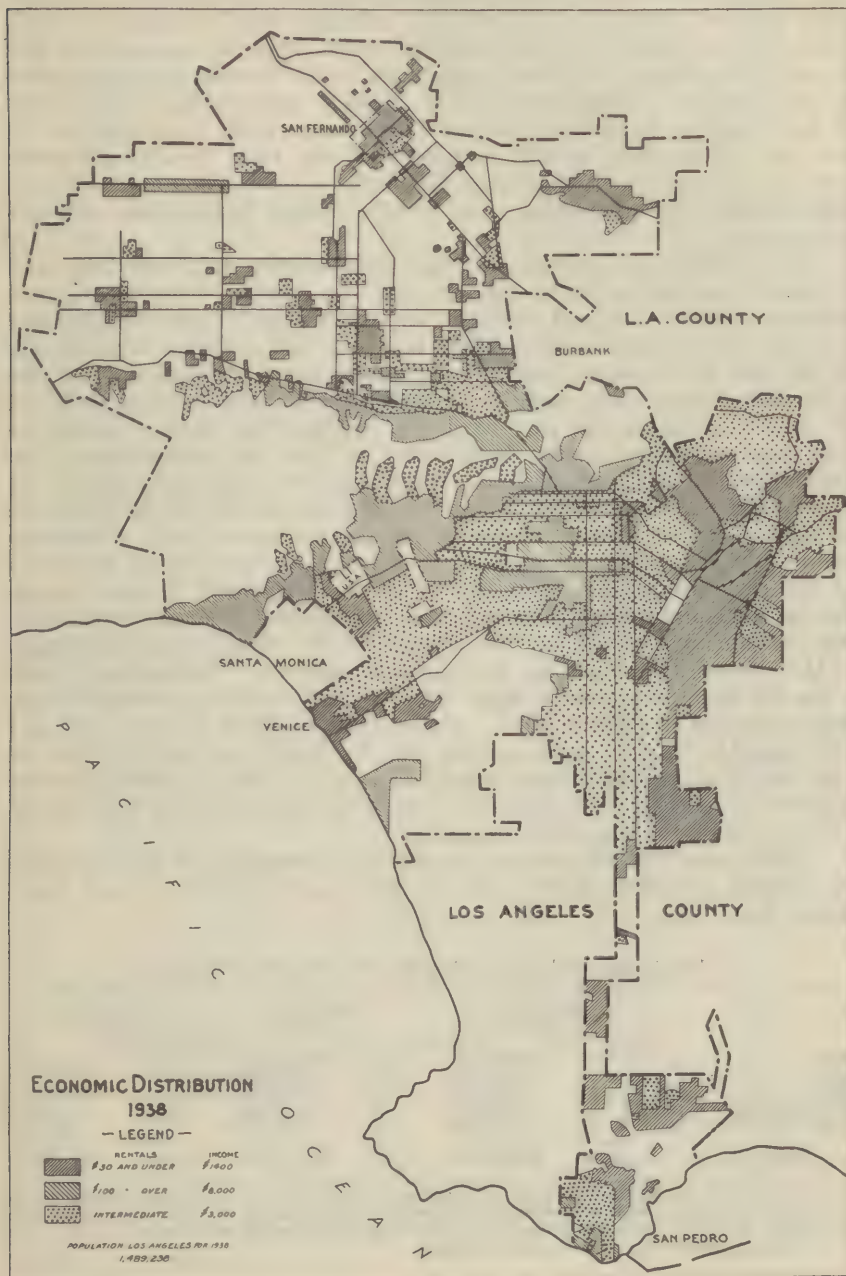
(e) Maximum possible bonding capacity for new self-liquidating projects (based upon ordinance) -----	\$43,502,143.31
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* Represents Sinking Funds created to equalize the burden over the entire life of certain Water and Power Bonds. All Los Angeles City bonds are serial and, as such, subject to pro-rata annual maturities.

It should be observed that under the charter, the base of taxation is the assessed "fair market" value of all taxable property and that the taxation base affects the permissible limits of bonded indebtedness the city may incur for general municipal purposes and for revenue producing projects. It would appear that under the charter the limit of bonded indebtedness the city may incur for general purposes is 3 per cent of the assessed valuation of taxable property, or 3 per cent of \$2,558,212,120.00 which is \$76,746,363.60, as of the fiscal year ended June 30, 1938, and that the charter limit for the same period for bonded indebtedness for revenue producing projects is 12 per cent of the assessed valuation, or \$306,985,454.40.

However, the city council has by ordinance prescribed that the taxation bases shall be 50 per cent of the assessed "fair market" value of all taxable property, or \$1,279,106,060.00 for the fiscal year ended June 30, 1938. Furthermore, it should be noted that in practice, such taxation base, rather than the assessed "fair market" valuation prescribed by charter, properly is being adhered to in matters of city bonded indebtedness, which makes the adopted limit for general purposes \$38,373,181.80 and for revenue producing projects \$153,492,-

727.20. The action of the city council in prescribing a taxation base equal to 50 per cent of the assessed valuation not only properly has served to reduce proportionately the dollar limits of bonded indebtedness permitted under the terms of the charter, but also has served to reduce the city revenue derived from the maximum permissible tax rate permissible under the charter.



The charter fixed the maximum revenue for general municipal purposes at the comparatively low rate (in modern practice) of \$1.25 per \$100 of assessed (fair market) valuation of all taxable property; the city council by ordinance has reduced this taxable base 50 per cent and that reduces the possible maximum city tax revenue 50 per cent by reason of charter limit on tax rate, so that in effect the city tax rate for general municipal purposes is \$0.625 per \$100 of assessed (fair market) valuation. When this effective rate is compared with similarly computed effective rates in other cities of comparable size in the United States, or other large cities in California, the comparison is illuminating. Likewise the total bonded indebtedness of the city of Los Angeles in effect is held at 1.5 per cent plus 6 per cent or 7.5 per cent of the fair market valuation of the total taxable property and this picture when compared similarly with the bonded indebtedness of cities of comparable size in the United States, also becomes interesting.

In addition to limiting the maximum annual tax rate that may be laid on taxable property in the city, the charter furthermore provides specifically for and fixes the apportionment of such annual tax revenue. It specifically prescribes that two independent departments of the city government, namely, the department of libraries and the park department, each shall be apportioned for their support \$0.07 of the \$1.25 maximum tax rate fixed; in addition the charter prescribes that a third independent department of the city government, the department of playgrounds and recreation, shall be apportioned for its support \$0.06 of the \$1.25 tax rate and an additional \$0.06 of the maximum \$1.25 tax rate is apportioned for permanent public improvements; the charter furthermore prescribes that so much as necessary of the revenue derived from the \$1.25 tax levy shall be made available as the contribution of the city for the operations of the participating pension system set up for benefit of the firemen and policemen of the city and for a similar civil service employees' retirement system—for the fiscal year ended June 30, 1938, this represented \$0.08 (this item increased in 1939 to \$0.18—approximately \$0.09 for each system.) The variable balance, representing for the fiscal year ended June 30, 1938, \$0.91 of the \$1.25 maximum tax rate, is made available for the support of all other administrative departments, agencies and instrumentalities of the city government.

The following table gives a comparative summary of the tax levies on taxable property in the city of Los Angeles for the fiscal years ended June 30th, 1937, 1938 and 1939:

Tax Levies Paid on Los Angeles City Taxable Property

	Fiscal Year 1936-1937		Fiscal Year 1937-1938		Fiscal Year 1938-1939	
	Rate per \$100	Total	Rate per \$100	Total	Rate per \$100	Total
Schools -----	\$1.37	\$17,359,815	\$1.70	\$21,744,803	\$1.6133	\$21,980,639
City -----	1.60	20,274,236	1.58	20,209,876	1.71	23,298,142
County -----	1.27	16,092,675	1.41	18,035,395	1.51	20,573,213
Metropolitan water district*	.37	4,688,417	.40	5,116,424	.40	5,449,858
County flood control district**	.20	2,324,578	.19	2,215,753	.21	2,494,544
Grand total -----	\$4.81	\$60,739,721	\$5.28	\$67,322,251	\$5.4433	\$73,796,396

* Represents participation of the city of Los Angeles in the Metropolitan Water District formed for the underwriting of the new Colorado River Aqueduct, thus insuring the adequacy for the future of the city's public water supply through the availability of the water of this second great aqueduct, to the city.

** Rate is applied only to real property valuations.

The following table shows the per capita equivalent of taxation levied in the city of Los Angeles for the various items of taxation listed in the foregoing table, for the fiscal year ended June 30, 1938, using the U. S. Census Bureau estimated population of 1,489,238 for that year:

Activity	Rate per \$100	Amount	Per Capita Equivalent
Schools -----	\$1.70	\$21,744,803	\$14.60+
City -----	1.58	20,209,876	13.57+
County -----	1.41	18,035,395	12.11—
Water district -----	.40	5,116,424	3.44—
Flood control district-----	.19	2,215,753	1.49—
	\$5.28	\$67,322,251	\$45.21+

The revenue derived by the city of Los Angeles from the city tax levy for the fiscal year ended June 30, 1938, was \$19,991,853. This amount was augmented through the collection of \$1,591,154 of delinquent tax and interest thereon from prior years, improvement district and other special regional taxes and assessments, etc., to make the total tax receipts for the year \$22,471,297.48.

The total revenue derived from the city tax levy was allocated to the following three major classes of obligations:

1. Payment of accrued interest and matured principal of bonded indebtedness -----	15.8%
2. Mandatory allocations by charter-----	21.5%
3. General budgetary allocations-----	61.7%
4. Unallocated -----	1.0%
	100.0%

The following table presents a summarized analysis of the budgetary allocation of the city tax rate of \$1.58 for the fiscal year ended June 30, 1938:

Purpose	Per Cent of Rate	Equivalent Rate per \$100
A. Bonded indebtedness—		
1. General purposes -----	12.5—	\$0.20—
2. Revenue producing activities (harbor)-----	3.3+	0.05+
B. City Government—		
1. Mandatory charter allocations—		
(a) Department of libraries-----	4.4+	0.07
(b) Department of parks-----	4.4+	0.07
(c) Department of recreation-----	3.8—	0.06
(d) Permanent improvements-----	3.8—	0.06
(e) Department of pensions-----	5.1—	0.08
(f) Department of retirements*-----	--	--
2. General budgetary allocations—		
(a) Police department-----	21.9+	0.35—
(b) Fire department-----	15.1—	0.24—
(c) Health department-----	2.2—	0.04—
(d) Receiving hospital-----	1.2—	0.02—
(e) All others -----	21.3—	0.34—
(f) Unbudgeted -----	1.0+	0.02—
	100.0	\$1.58

*Effective date pending approval by California Legislature; deficit in current expenses met by temporary loan of \$172,437 from general surplus.

In general, however, the allocations of city tax revenue for the fiscal year, itemized in the foregoing table were not equal to the total amounts budgeted and authorized for expenditure under the respective items for the fiscal year and the table only shows the distribution of the proceeds of the city tax levy.

The following table summarizes the principal sources and amounts of the entire revenue of the city of Los Angeles for the fiscal year ended June 30, 1938:

1. Collections of city tax levy for current fiscal year-----	\$19,991,853.60
2. Collections of delinquent city tax levies for prior years (with interest) and penalties-----	1,591,154.75
3. Collection of district improvement and other special taxes-----	888,289.04
Sub-total—city tax revenue receipts-----	<u>\$22,471,297.48</u>
4. Licenses, permits, certificates, etc.—department of building and safety-----	\$695,886.13
5. Licenses, permits, certificates, etc.—city clerk's office-----	1,110,854.93
6. Licenses, permits, certificates and services—department of public works-----	556,121.74
7. Licenses, permits, certificates, etc.—fire department-----	32,886.50
8. Licenses, permits, certificates, etc.—health department-----	198,964.33
9. Licenses, permits, certificates, etc.—humane department-----	219,918.45
10. Licenses, permits, certificates, etc.—board of mechanical engineers-----	56,165.50
11. Licenses, permits, certificates, etc.—police department-----	72,418.40
12. Licenses, permits, certificates, etc.—all other departments-----	356,092.26
Sub-total—revenue derived from licenses, permits, certificates, etc.-----	<u>\$3,299,308.24</u>
13. Income from public utility and miscellaneous franchises-----	\$872,448.50
14. Income from fines, bail forfeitures, etc., municipal courts-----	345,108.63
15. Income from rents from city owned property-----	151,975.70
16. Income from interest on invested and deposited city funds-----	262,412.89
17. Income from city share liquor license fees received from state-----	451,320.30
18. Income from city share motor vehicle license fees received from state-----	<u>786,640.04</u>
Grand total of income-----	<u>\$28,640,511.78</u>

The following table shows the percentage of the total city income (summarized in the foregoing table) derived from the various principal sources for the fiscal year ended June 30, 1938:

Source	Amount	Per Cent of Total
(a) City tax revenue-----	\$22,471,297	78.3
(b) Licenses, permits, certificates-----	3,299,308	11.5
(c) Franchises-----	872,448	3.4
(d) Fines, forfeited bail-----	345,109	1.2
(e) Interest and rentals-----	414,389	1.3
(f) Motor vehicles and liquor control (state)-----	1,237,960	4.3
Total-----	<u>\$28,640,512</u>	<u>100.0</u>

In the following table there are summarized the expenditures of the city government (exclusive of self-sustaining public utilities and improvement districts) for the fiscal year ended June 30, 1938, showing the source of the appropriated funds budgeted for the purposes listed.

Purpose	Total Expenditure	Derived from City Taxa- tion	Derived from Other City In- come and Funds	Equivalent per Capita Expendi- tures
1. Bonded indebtedness				
(a) General purposes -----	\$3,312,759 ^a	\$2,558,212	\$754,759	\$2.22
(b) Revenue producing public utilities (harbor) -----	1,650,626 ⁱ	639,553	1,011,073	1.11
2. Mandatory allocations (charter)				
(a) Libraries -----	\$1,083,312	\$911,887	\$171,425 ^c	\$0.73
(b) Parks -----	1,174,220	911,887	262,333 ^d	0.79
(c) Recreation -----	915,980	776,899	139,080 ^e	0.62
(d) Permanent improvements -----	811,908	776,899	35,009	0.55
(e) Pensions -----	1,431,781	1,023,286	408,495 ^e	0.96
(f) Retirement -----	761,265	172,437 ^a	588,828 ^b	0.51
3. Semi-mandatory				
(a) Police -----	\$7,116,790	\$4,476,871	\$2,639,919	\$4.78
(b) Fire -----	5,154,863	3,069,854	2,085,009	3.46
4. General budgetary				
(a) Health -----	\$702,908	\$443,607	\$259,301	\$0.47
(b) Receiving hospital -----	390,371	239,891	150,480	0.26
(c) Social service -----	290,975 ^g	6,642,451	4,378,843	0.20
(d) Humane department -----	116,216			0.08
(e) All other departments -----	10,614,103			7.13
Total -----	\$35,528,077	\$22,471,297	\$11,314,393	\$23.87

^a Loan from city reserve fund pending approval tax allocation by State Legislature.

^b Employees salary deductions and interest.

^c Self-produced revenue and reserve fund.

^d Includes \$700 appropriated from city general funds and \$50,000 in WPA aid; balance from self-produced revenue.

^e Derived from beneficiaries salary deductions and self-produced income (amounting to \$1,055,060).

^f Includes \$1,000 appropriated from city general funds and \$1,307 in gifts; balance from self-produced revenue.

^g Includes \$200,000 contribution to community chest organization—no direct relief.

^h Includes \$49,236 held in reserve for matured bonds not presented and accrued interest not claimed.

ⁱ Includes \$15,698 held in reserve for matured bonds not presented and accrued interest not claimed.

From the foregoing table it is apparent that the total cost to city funds of the operations of the city government and the redemption of matured bonded indebtedness and the payment of accrued interest on outstanding unmatured bonded indebtedness (exclusive of special improvement district bonds, etc.) in the fiscal year ended June 30, 1938, reached the grand total of \$33,785,690 while the total income of the city during the same period available to meet such charges was \$28,640,512, representing an over-expenditure above current income of \$5,145,178, which had to be taken from reserve and other unobligated funds. The water-power utility funds decreased from \$7,590,411 to \$6,597,144; \$553,900 of the revenue funds of the power-light municipal utility and \$582,341 of the revenue funds of the water-power municipal utility were transferred to the general fund of the city. The reserve fund of the city decreased from \$5,565,387 to \$3,694,259 during the year.

Since 1924, the taxation valuations (equal to 50 per cent of the assessed "fair market" valuation) of all taxable property in the city of Los Angeles has exceeded one billion dollars. In the years 1929, 1930 and 1932 it exceeded two billion dollars as compared with \$1,279,106.060 in 1938. During the period 1924-1938 the city tax rate for general purposes remained stationary at \$1.25 (the maximum permitted under charter). The total city tax rate during this period varied from \$1.55 in 1924 to \$1.58 in 1938; the minimum rate levied during the period was \$1.53 in 1927 and 1933 while the maximum rate

was \$1.79 in 1929. The \$1.25 charter rate for general purposes (ordinance application of 50 per cent of assessed valuation) produced during the same period from \$12,461,881 in 1924 to \$23,453,465 in 1930, as compared with \$15,988,825 in 1938.

The controlling factor in the range of total rate of city tax levy is found in the rate required for redemption of maturing bonded indebtedness and pay of accrued interest on outstanding unmatured bonded indebtedness. This obligation is fixed as dollar requirements and the variation in the taxable valuation had to be offset by proportionate adjustment of rate for these purposes. As stated before the tax rate for general purposes has remained constant during the period, as have charter allocations of that rate. Activities of the city government funded with fixed charter allocations of the general purpose tax rate experienced quite an appreciable variation in income in proportion to the variation in taxable valuations, regardless of the importance or need of the specific activity. This was also true of budgetary activities funded with the remainder of the general purpose city tax rate after deducting charter allocations; however, the city administration could exercise some discretion in the amounts allocated for budgetary activities, after giving consideration to the importance and need of the activity and reconciling that with the amount of funds available.

The experience had by the city of Los Angeles with both systems of tax revenue allocations applied in the same community (fixed charter allocations and budgetary allocations) would provide an excellent opportunity for their comparative study as regards the advantages and disadvantages of these respective systems. In general, charter allocations have as their real objective the assurance of a fixed share of tax income for the special activity regardless of a favorable or an unfavorable general city administration and many persons interested in these respective special activities have advocated that system of fixed allocations (usually fixed as high as possible to obtain).

A similar principle is the basis of the funding of independent agencies of local government, notably public education, but in these, essential flexibility through adjustment of tax rate and its proceeds to financial needs (and vice versa) is preserved. The health districts authorized under laws of the State of California are organized and funded along similar lines.

Where a budgetary system is followed, the detailed tax-rate as well as its dollar proceeds should be publicly budgeted for each tax period and the amount of funds allocated to each activity should also be expressed in terms of per capita equivalent for the more complete understanding of both the voter and the taxpayer.

PRESENT HEALTH DEPARTMENT ORGANIZATION

By MEDICAL DIRECTOR F. A. CARMELIA and P. A. SURGEON F. W. KRATZ,
U. S. Public Health Service

For ten years following the founding of the San Gabriel Mission on the east side of the Los Angeles River in 1771, the mission administered communal affairs of the area. There is no record, however, of any activities on the part of the mission along public health lines. The mission was supplied with the medicaments in use at the time and ministered to the sick in so far as it was capable of doing so.

Likewise there is no record that the official founding of the city of Los Angeles by the Spanish governor in 1781, which was coupled with provision for civil presidio government of the community exclusive of the mission itself, resulted in any attention being given to matters of communal sanitation or the prevention of disease, notwithstanding, as was universally the case throughout the world, the coming of the European explorer and subsequent colonization was attended by the introduction of diseases which were new to the native Indian population against which they had little resistance and to which they readily fell prey. During the era of the Spanish, and later the Mexican, government of California Alta the settlements repeatedly experienced outbreaks of epidemics which apparently were malaria and smallpox.

In 1822, Spanish sovereignty over California and its control of the civil presidio was relinquished to the government of Mexico. However, this did not result in any notable change in the characteristics of local government. In 1833, the civil presidio extended its sphere of government to include the mission also. In this year the city government adopted the first ordinance of record pertaining to public health matters. The ordinance was passed by the "Ayuntamiento" which required all persons slaughtering cattle for hides and tallow, to cremate the discarded carcasses in order to eliminate public nuisance arising from the stench from rotting carcasses of slaughtered cattle.

In August of 1846 Commander Sloat of the United States Navy occupied in the name of the United States, the city of Los Angeles. The Treaty of Cahuenga in January of 1847 recognized claims of the United States, and the sovereignty of the United States over California Alta was settled between the United States and Mexico the following year. During this period there occurred the second recorded evidence of governmental and/or citizen interest in public health matters. Under date of March 27, 1847, one Julian Charvez addressed a letter to the Honorable Town Council as follows:

"It being one of the principal duties of any municipal body when it sees that an epidemic begins to attack the community, to enforce cleanliness, fumigation and similar measures, I respectfully suggest that you instruct the Syndic to spend three or four dollars in causing all the heads and remains of cattle as well as other dead animals that can be found, to be gathered into a heap in the borders of the town and set on fire at the hour of six in the evening, to be thoroughly consumed

and the air purified. Also that you admonish the people to keep their premises clean and sweep in front of their houses and on no condition to throw any garbage, filth or offal of the cattle they slaughter in the streets. Also that the work on the zanja be pushed to an early completion, because our citizens who live further below are suffering greatly for lack of water, which is also one of the causes why the epidemic lasts so long. In making these recommendations, I beg of you to give them your immediate consideration."

It is recorded that the Town Council met on March 29, 1847, to consider this communication and resolved "that the Syndic be authorized and instructed to make the expenditure as suggested for the purpose of cleaning the city."

On April 4, 1850, the city of Los Angeles was granted a charter of incorporation by the Legislature of the new State of California and there was set up a local government patterned after contemporary American customs. Shortly thereafter, under date of July 27, 1850, the new common council under the charter government, adopted a resolution "declaring it the duty of the police to attend to everything touching the comfort, health and adornment of the city." This policy of the common council was given effect through the promulgation under date of August 8, 1850, of police regulations which included the following:

"Article 6. On Saturdays every household shall clean the front of his premises up to the middle of the street, or for the space of at least eight varas.

Article 7. No filth shall be thrown into zanjans, carrying water for common use, nor into the streets of the city."

Up to this time it will be noted that such governmental efforts as were made and are of record to maintain and promote public health of the community related solely to matters of sanitation.

On April 2, 1853, the common council passed the first ordinance of record concerning the public food supply. This ordinance related to the making of bread for public sale and required the use of good and wholesome flour and prescribed uniform size of the loaves.

In 1855 the common council passed another ordinance regulating the slaughter of cattle. This ordinance made provision for a city slaughter-house and required all slaughtering activities to be conducted thereat under a rental or fee for the use thereof and further required the disposal of the offal in such a manner as not to be offensive. The office of stock and meat inspector was created and the appointee was required to give bond in the sum of \$500 for the satisfactory performance of his duties and he was authorized to be compensated through a set fee system for stock inspection.

In 1868 there occurred an epidemic of smallpox and in the record thereof the following developments are recorded. In this record occurs the first available reference to a county hospital which, it is stated, existed in name only and it is further stated that the Sisters of Charity were paid a per capita fee by the city for the care of the indigent sick. Just how long before any provision was made for a county hospital or the care of indigent sick at public cost does not appear to be recorded. Similarly, the report of the epidemic records the existence of a board of health consisting of the mayor and two councilmen appointed thereto by the president of the common council, but available records

do not indicate just when such a board of health was first created or whether it was a permanent or emergency action or whether it was formally or informally constituted. However, as has been noted, responsibility for the health of the community was placed by earlier city ordinance upon the city police. In order to control the ravages of this first recorded epidemic of smallpox, it appears that the mayor appointed in July, 1868, the first health officer, Doctor H. S. Orme, for the period of the emergency at a salary of \$10 per day and defined his duties as "care for the smallpox patients and supervision of the sanitary conditions of the city." During the epidemic, the city and county authorities jointly constructed the first isolation hospital, located in Chavez Ravine, for the care of these smallpox patients. The following is recorded respecting this epidemic:

"Smallpox was quite prevalent. Many cases occurred among the Indians who were employed to pick grapes in the city and its vicinity. These Indians when first attacked with the fever would often plunge into the zanja (open aqueduct of the public water supply), or the Los Angeles River and then lie around on the banks until they were picked up in a critical condition or perhaps dead. The mortality during this epidemic was great and the Sisters of Charity with self-sacrifice and regardless of their own health rendered most faithful and efficient service during the epidemic. Vaccination was enforced as early as possible and the disease eventually was eradicated."

In June of 1869, Doctor Orme resigned his appointment as temporary health officer for the duration of the emergency and received a testimonial from the board of health of the city of Los Angeles conveying their warmest thanks for the efficient manner in which he had discharged his duties as health officer and attending physician at the city smallpox hospital.

Apparently the character and usefulness of the services rendered to the community by the first city health officer, Doctor Orme, resulted in the establishment of the custom of having a city health officer at least in times of emergency and it is recorded that between 1869 and 1873 Drs. Dupuyteen, Gale and McKee served as city health officers at different times.

The first record of formal action on the part of the city council to create a permanent board of health is found in an ordinance adopted April 11, 1873, which prescribed that a city board of health was created to consist of the mayor, the president of the council and two members of the council appointed by the president. This same ordinance also fixed the salary of the city health officer at \$50 per month and provided that he was to be appointed by the board of health subject to the approval of the city council.

In August of 1874, the city council passed the first comprehensive public health ordinance of record which provided for free vaccination against smallpox and required the formal reporting of all births, deaths and cases of contagious diseases, and an official burial permit. At the same time the city council also adopted an ordinance for the prevention of nuisances and making miscellaneous provisions for safeguarding the public health including a section prohibiting the sale of adulterated milk, spoiled meat, fruit and vegetables, protection of the impounding basin and the distributing zanjias of the public water supply from animal contamination and use for bathing or laundry

purposes, regulations for cesspools and garbage disposal, et cetera. However, these auspicious circumstances were destined to a short life, for in October of the same year marked a step backward in public health progress for the city of Los Angeles, for on October 1st of that year the city council passed an ordinance which repealed the ordinances creating the board of health, the position of health officer and prescribing his duties, and apparently reverted to the system of employing a physician as temporary health officer during emergencies only.

The following quotes from local contemporary press would appear to throw a great deal of light on these circumstances:

A Stab at the Public Health

It seems from the published proceedings of the city council yesterday, that the health office was declared vacant by four members, viz: Messrs. Beaudry, Mascarel, Chavez and Gerkins, a bare majority of a bare quorum present. Mr. Gerkins made this motion on the assumption that the term for which the office had been instituted, expired on the 30th of September, and by virtue of this alone although he included in his motion a vote of thanks to Dr. McKee for his activity and efficiency in the discharge of his duties, he urged the monstrous idea that the city no longer needed the services of this officer.

This action is somewhat startling to the sober, decent and thinking portion of the public, when it is remembered that on the sixth of August last, the board, by a vote of eight against two, passed a series of sanitary laws which are a great credit to our city, and if enforced would make Los Angeles a cleaner and healthier place. These make the health office a permanent institution, and requires of the officer in charge certain constant duties, such as keeping a register of the births and deaths in the city, administering gratuitous vaccinations to all who apply; keeping a constant surveillance over the advent of contagious disease, such as cholera or smallpox; all of which these four men by the circumstance of their forming a majority of the members present, have undertaken to render null and void. These men have assumed an unenviable position before the public by this action, and as public servants, working for the good of all, they will be held to account in the future.

The health officer in his report, yesterday, stated that he had ordered the abatement of three hundred and sixty nuisances of various kinds consisting of old and long neglected private vaults, broken sewers, filthy drains, cesspools, filthy China washhouse, drains of water closets and sewage matter in the public zanjas, the waters of which are being used for drinking and other purposes by hundreds of the poorer classes of our city; long neglected accumulations of garbage and filth from cheap hotels and restaurants, lodge and chop houses; dead animals and filthy pens of swine and diseased fowls, etc., many of these orders remain yet unexecuted by these people who will continue to maintain nuisances unless driven by the force of law to habits of cleanliness, and our city will be but little benefitted by the pains and good intentions of the health officer, and the real majority of the council.

Mr. Beaudry, in his remarks explaining his vote, stated that the health officer had been vigilant and active in the enforcement of the new laws—in fact, had done too much for the pay he received; that the sanitary regulations adopted for this city would be very well for an old European city, but they were too far in advance for Los Angeles, which it must be remembered, was a *new town* and not able to enforce the laws of cleanliness; that there were three hundred and sixty nuisances ordered abated, by which we were to understand that three hundred and sixty men were to be dragged before the officers of the law and fined. Therefore, he would vote for the discontinuance of the office. This remarkable speech, from one claiming to be a representative man of the city, will hardly commend him to the suffrages of our people for the highest office within their gift. We are sorry, indeed, this action of the board has taken. (Our city instead of being a new one, is nearly one hundred years old, and has not had a reputation for cleanliness.) Dr. McKee, by his indefatigable efforts has succeeded in giving at least a little tone to this reputation, and was so systematizing his office that in the course of a few more months it would have succeeded in effecting a material change in the

sanitary conditions of the city. The office has been suspended at a most inopportune moment, for we are in the midst again of the ravages of scarlatina and are liable to be visited by smallpox any day, in which case we want to be in the best sanitary condition possible. We hope the board will reconsider its action and yield to the demand of the public in restoring and continuing the health officer in the work he has so efficiently begun and faithfully prosecuted.

How It Will Work

There never has been anything more clearly established than the point constituted by the action of the council in vacating the office of health officer. The indictment brought against this office was too much diligence resulting in the finding of too many festering nuisances in our city that ought to be abated. It is hardly to be expected that the office will not be revived and filled, and in that event, whoever is appointed must understand that he must shut his eyes to nuisances on the premises of the influential men and report as few as he can; the fewer the surer he will be of holding his place. If the same rule should be extended to every department of municipal service, it would bring public affairs to a standstill.

It seems that in those days the attitude of the general population of Los Angeles toward public health was not unlike that obtaining only too often in the present day. In the face of actual or threatened epidemic the public would demand an able and energetic health officer and an adequate health department but once the danger had passed their interest lagged and their attitude soon took on the aspects of "laissez faire."

According to recorded data it was the county medical society of Los Angeles County that preserved the light of public health during these trying times, carefully cultured it and eventually assumed the leadership in the reestablishment of the position of city health officer and provisions for adequate public health services. In February of 1876 the county medical society addressed a letter to the city council which "begged leave to call their attention to the importance of a well organized and efficient health department for the city such as is established in other cities of like size and population." This bore some fruit immediately in that the health officer who had been employed theretofore on an emergency part-time basis was allowed an increase in compensation to \$75 per month for a period of three months as increased compensation for extra duty in vaccinating the poor of the city against smallpox. While the record is not clear, it would appear that this rate of compensation was continued following the expiration of those three months, although it is not clear as to whether the position continued in temporary emergency status or as a permanent appointment on monthly basis.

In 1879 a reconnaissance in public health began, and without question was the result in major degree of the interest and activities of the county medical society, backed up by the independent local press. There was no board of health but the city council elected Doctor Walter Lindley as city health officer. The record does not indicate whether this was a full-time or permanent appointment. Nevertheless, Doctor Lindley inaugurated the system of free vaccination of public school children and reestablished the system of registration of births and deaths and made the first annual report of record covering the transactions of the office of city health officer. This report made under date of November 13, 1879, for the preceding ten months, listed the estimated population of the city at 16,000. During Doctor Lindley's

term of office he promoted garbage collection system for the city and was instrumental in the installation of a sewer system serving the main city streets.

The next city health officer was Doctor J. B. Winston who served from 1880 to 1882 and was succeeded by Doctor T. C. Gale who served for the years 1883-1884. Doctor J. S. Baker was city health officer during the years 1885-1886 and his reports record several outbreaks of smallpox and diphtheria. The number of deaths reported to have occurred in the city during the year 1886 was 454, and the number of births, 438. 120 deaths were recorded as being due to tuberculosis, 12 from typhoid, 15 from scarlet fever, 7 from diphtheria and 14 from pneumonia.

In 1887 the records make reference again to a city board of health but do not indicate whether it is a formal or informal board. At this time, the board of health consisted of the mayor, the president of the council and three members of the council. The board elected Doctor Martin Hagan as city health officer and Doctor G. L. Cole as assistant health officer and police surgeon. At this time the city was in a boom stage, rapidly increasing in population and territory and this was marked by an epidemic of smallpox. The health officer reported that vaccination was vigorously enforced and that 30,000 vaccinations were performed within a period of four weeks. However, the records indicate that the epidemic of smallpox was not stamped out until the following year.

In 1888, the health officer makes the first recorded recommendation for subordinate personnel for a health department, recommending the appointment of three additional sanitary inspectors, a market inspector and a plumbing and drainage inspector. It will be noted that the recommendation was for three additional sanitary inspectors but the records did not indicate otherwise that any sanitary inspectors theretofore had been employed as such by the city health officer.

The year 1889 marks another epoch in the history of public health services in the city of Los Angeles. In this year a new city charter was adopted and became effective. This charter provided for an elective board of health of four members and an elective city health officer (apparently the fifth member). The board and city health officer were quartered in an office in the city hall and established a system of monthly reports of activities and also established a quarantine system comprising placarding of houses for diphtheria, scarlet fever and smallpox. The board also required the water companies to cover the open aqueducts bringing the public water supply to the city. The city health officer in this period also acted as police surgeon; all cases of accidents were taken to the city police station and were cared for in the prisoners' cell room. The city health officer succeeded in getting an appropriation to make some alterations in the police station which provided a separate operating room with a cement floor and a large skylight.

In 1890 the board of health succeeded in establishing for the first time a regular system for the collection of garbage under contract and constructed an incinerator for its burning.

In 1893 the office of meat inspector was created in the health department and the system of meat inspection inaugurated.

The year 1894 was marked by the adoption of formal rules and regulations by the board of health governing the reporting of contagious and infectious diseases quarantined and placarding of cases of such diseases, and the passage by the city council of an ordinance requiring the registration of physicians, dentists, pharmacists, midwives and medicine vendors. This year was also marked by the passage by the city council of a new sanitary milk ordinance (the former ordinance merely forbidding the sale of adulterated milk) and the installation in the attic of the city hall of a laboratory for the examination of milk; all dairy inspections and milk analyses were made by the city health officer, Doctor L. M. Powers—in fact the laboratory equipment was donated by him. In the following year, however, the meat inspector also was made the milk inspector.

The year 1895 was marked by the first recorded administration in the city of antitoxin for the treatment of diphtheria; the antitoxin was procured in New York from the Pasteur Institute, and was administered by the city health officer, Doctor L. M. Powers. During this outbreak of diphtheria, 152 cases were reported to the city health officer, 28 of which were fatal. The city health officer observed that under the limited use of antitoxin (which was used in about 50 per cent of the cases reported) the death rate from this disease had been reduced from 25 per cent to 18.4 per cent and that enough antitoxin had been used in this outbreak to prove conclusively that it had saved the lives of many children. In this year also is the first record of the condemnation of cattle by the health department's dairy inspector because of tuberculosis; five milk cattle were condemned and killed.

The year 1898 marked the establishment of a bacteriological laboratory in the attic of the city hall building, expanding the milk laboratory installed in this space in 1894, and the city health department inaugurated the making of diphtheria cultures, serum tests for typhoid fever, sputum examinations for tuberculosis and bacteriological examinations of public water supplies. In the latter part of this year, the city experienced a severe outbreak of hemorrhagic smallpox which originated in railroad workers' and itinerants' camps. The total number of cases was 121, of which 22 were fatal. The epidemic finally was stamped out in the following year.

The year 1901 was marked by a drive for improved milk supply. Many cases were prosecuted in which the milk contained formulants or other preservatives, in addition to containing adulterants and substitutes, namely water. This was the year also of the discovery of bubonic plague in San Francisco and the public excitement created thereby was reflected in Los Angeles and resulted in the health department making routine inspections of Chinatown for sick Chinese, and subjecting to autopsy all deceased Chinese; this probably reflected the fact that the first case in San Francisco was discovered in a Chinese. In 1903, the city council made a contract with a commercial firm of chemists to make analyses to assist the health department in the vigorous enforcement of pure-food laws, particularly with reference to coloring matter added to canned olives and the use of preservatives for fresh meats, et cetera.

The following year, 1904, was another epochal year for the city health department and marked considerable expansion of its activities.

The city council appropriated funds for the construction of an annex to the city hall for the use of the city health department. The city council also authorized the employment of a bacteriologist and of a chemist in the city health department. The year also marked the employment in the city health department for the first time, of a nurse for public health work; the office of school nurse was created in September of 1904. (However, in 1898, the city council had prior authorized the expenditure of \$50 per month for the services of a visiting nurse under the auspices of the city health officer and the College Women's Settlement Association.) The total number of employees of the city health department now reached 25. Since 1904 the city health department has grown more or less steadily to reach its present development; in common with all public health, the maximum development has taken place in the last decade or two.

There have been fifteen city health officers in charge of the city health department in the seventy-one years of its existence, from 1868 to 1939, of which one city health officer, Doctor L. M. Powers, served continuously for a period of more than 30 years.

City Health Officer	Status	Service	Years
Dr. H. S. Orme ----	Emergency	Part-time	1868-1869
Dr. P. Dupuyteen ---		Part-time	1869
Dr. T. C. Gale -----		Part-time	1870
Dr. J. H. McKee ----	Permanent (\$50 per mo.)	Part-time	1871-1874
Dr. W. Lindley -----	Permanent (\$75 per mo.)	Part-time	1879
Dr. J. B. Winston --	Permanent (\$75 per mo.)	Part-time	1880-1882
Dr. T. C. Gale -----	Permanent (\$75 per mo.)	Part-time	1883-1884
Dr. J. S. Baker -----	Permanent (\$75 per mo.)	Part-time	1885-1886
Dr. M. Hagan -----	Permanent (\$75 per mo.)	Part-time	1887
Dr. J. W. Reese -----	Permanent (\$75 per mo.)	Part-time	1888
Dr. G. MacGowan ---	Permanent (\$75 per mo.)	Part-time	1889-1892
Dr. L. M. Powers ---	Permanent (\$75 per mo.)	Part-time	1893-1894
Dr. F. W. Steddom --		Part-time	1895-1896
Dr. L. M. Powers ---		Full-time	1897-1924
Dr. G. M. Parrish ---		Full-time	1924-1933
Dr. C. W. Decker ---		Full time	1933-1934
Dr. G. M. Parrish ---	Permanent (\$7,200 per annum)	Full-time*	1935-

* Civil service status since 1937.

The present health officer has served a total of twelve years, 1924-1932 and 1934-1939. Before coming to Los Angeles in 1924, he had served as health officer of the city of Portland, Oregon, for the preceding eight years and prior to that in St. Louis, Missouri, for five years, and so he has had a total experience of about 25 years in public health administration in two of the largest cities on the Pacific Coast.

Prior to the adoption of an amendment to the city charter in 1937, the city health officer and all other medical officers of the health department were exempt from the provisions of the city's civil service system. In 1937, the position of city health officer was made subject to the rules and regulations of civil service and the incumbent city health officer acquired civil service status; however, all other medical officers of the health department still continue to be exempt from the civil service system of the city, notwithstanding medical officers of the receiving hospital are designated as police surgeons and are subject to the provisions of the civil service system, as are also all other employees of the health department.

Legal Authority for Work of Health Department

Government in the State of California is designed on the pattern of "home rule" in so far as practicable. The immediate duty of carrying out many responsibilities vested in the state government is delegated to the local governments, leaving only responsibility for and supervision of these activities to the state. Local governments are planned to be self-government in the widest application practicable. Local governments in the state fall into two categories: (a) county government, for all the rural area and the nonincorporated towns and villages of a county; (b) government for incorporated cities and towns. General state laws prescribe the form of government for each class; however, state laws also provide for special charter government for each class, such charter plan representing local desires and ideas not conforming to the pattern provided in the general state laws, provided such are not in definite conflict with the comparatively few restrictive or mandatory state laws. General state laws also permit certain defined combinations of incorporated and nonincorporated areas into a chartered public health district, authorized and empowered to function with local independence and to be supported with direct taxation.

The constitution of the State of California prescribes in Article XX, section 14 that the Legislature shall provide by law for the maintenance and efficiency of a State Board of Health. The present Department of Public Health in the state government is a reorganization resulting from an amendment to Political Code in 1931 which created a State Department of Public Health and placed it under a Board of Health consisting of eight members, one of whom shall be the executive officer of the board and who shall be the full-time director of the department (State Health Officer). The Political Code of the state also makes provision (Article II of Chapter Three of Title I of Part III) for the establishment and conduct of the state and local departments of health.

Article XI, section 11 of the constitution also provides that any county, city, town or township may make and enforce within its limits all such local police, sanitary and other regulations as are not in conflict with the general state laws. This permissive authorization under the constitution is made mandatory under general laws of the state. The general laws of the state pertaining to matters relating to the preservation of the public health and safety and matters incidental thereto were consolidated and revised by the state legislature in 1939 which established a codification of such laws known as "The Health and Safety Code" and this is the current general law of the state respecting these matters.

The state Political and the Health and Safety Codes contain the following provisions respecting the responsibilities and duties of incorporated cities and towns in the state in public health matters.

(A) The city council (or other legislative body) governing any incorporated city or town shall by ordinance adopt for the regulation of sanitary and public health matters within the city or town, such rules and regulations relative thereto as are necessary and appropriate and not contrary to the general laws of the state, and shall supervise all matters pertaining to the sanitary condition of the city or town.

(B) The city council shall appoint a health officer who shall receive for his services such compensation as may be determined by the said appointing body and he shall hold office at its pleasure. The city council shall notify the Secretary of the State Board of Health of the appointment, giving the name and address of the appointee.

(C) The city council may appoint a board of health which shall be advisory to the health officer. In any incorporated city or town where there is no board of health the health officer shall perform all the duties required by the general laws of the state to be performed by local boards of health.

(D) If the governing body of any incorporated city or town neglects to provide a health officer, the State Department of Public Health may direct the district attorney to begin an action against the governing body to compel the performance of its duty, or the department may appoint a health officer for the incorporated city or town and the expenses of the health officer shall be a charge against the city or town for which the appointment is made.

(E) All necessary expenses incident to the observation and enforcement of rules and regulations adopted by ordinance for the regulation of sanitary and public health matters, and to the local application and enforcement of the provisions of general state laws regarding such matters where such is required within the incorporated city or town, shall be a charge against the incorporated city or town for the payment of which the incorporated city or town may levy a per capita tax of not exceeding \$3 or a property tax of not exceeding \$0.25 per \$100 of the taxable valuation of such property. The governing body of the incorporated city or town shall make the necessary tax levies which shall be inserted in the yearly tax levy, and make appropriations to provide for carrying out these duties and responsibilities in the same manner and at the same time tax levies and appropriations are made for all other city purposes.

(F) The health officer of an incorporated city or town must enforce or observe the following requirements:

(a) All ordinances of his city council pertaining to health and sanitary matters;

(b) All orders, quarantine regulations and rules prescribed by the State Board of Health;

(c) All general state laws relating to the public health and to vital statistics. In any incorporated city (or city and county) which constitutes a primary registration district and in which a health officer is provided for by a freeholders charter or other applicable law, the health officer shall be the local registrar of vital statistics. Every such health officer shall strictly observe and enforce within such incorporated city or town the provisions of state law for (1) the registration of all deaths; (2) the registration of all marriages; (3) the registration of all births; (4) the issuance and registration of burial and disinterment permits; (5) the establishment of registration districts; (6) promptly report to the Director of the State Department of Public Health any violation of the laws relating to the reporting, registration and certification of marriages, births and deaths coming to his knowledge;

(d) Report to the Director of the State Department of Public Health at such times as it may require (1) the sanitary condition of his locality; (2) the number of deaths with the determined cause of each occurring within his jurisdiction during the preceding month;

(e) Report to the Director of the State Department of Public Health all violations of the state health laws that come to his attention and such other matters within his knowledge or jurisdiction as the department may require;

(f) Report in writing to the Director of the State Department of Public Health at such times as the department requires, and upon blanks furnished by it, all infectious, contagious and communicable diseases occurring in man or beast which come to his knowledge;

(g) Report to the Director of the State Department of Public Health in the case of a local epidemic of disease all facts concerning the outbreak and the measures taken to prevent or abate its spread, infection or contagion;

(h) Issue licenses after a satisfactory examination to applicants who desire to carry on business, or to labor as, a master or journeyman plumber and keep a record of all licenses issued and publish the same in the yearly report.

Suitable drawings and description of the drainage and plumbing of all buildings both public and private to be erected in any city shall be submitted to the city board of health and placed on file in the office of the city health officer and all drainage and plumbing shall be executed in accordance with plans previously approved in writing by the city health officer.

(i) Enforce within the city (if there is no housing department) all the provisions of general state law pertaining to the maintenance, sanitation, ventilation, use or occupancy of apartment houses, hotels or dwellings. Similarly, the city health officer is required to observe and enforce within his city all the applicable provisions of general state laws pertaining to the inspection of meat and slaughter houses and the sanitary control of public milk supplies.

(j) Use every available means to ascertain the existence of cases of infectious venereal diseases within his jurisdiction and to investigate all cases which are not, or probably are not, subject to proper control measures approved by the State Board of Health, and to ascertain so far as possible all sources of infection and conduct all measures reasonably necessary to prevent the transmission of infection, and to enforce all provisions of the general law of the state pertaining to the prevention and control of venereal diseases and such rules and regulations as may be lawfully promulgated in that regard by the State Board of Health and to report to the State Department of Public Health such information in relation to the subject of venereal diseases as may be required.

(G) Specific authorization is also contained in the general laws of the state for employment by incorporated cities and towns of dentists and/or dental hygienists, public health nurses and for the establishment of public health laboratories.

(a) The governing body of a city may employ one or more dentists or dental hygienists, each of whom shall be a licensed dentist or

dental hygienist. The dentist or dental hygienist shall attend to such dental conditions of the city as the governing body may assign to him. His compensation shall be determined by that body.

(b) The governing body of an incorporated city or town may employ one or more public health nurses, each of whom shall be a registered nurse possessing such qualifications as may at the date of her employment be prescribed by the State Department of Public Health. The public health nurse shall attend to such matters pertaining to the health and sanitary conditions of the city as the governing body may assign to her. Her compensation shall be determined by that body.

(c) The governing body of any incorporated city or county may establish a bacteriological and chemical laboratory for the examination of specimens from suspected cases of disease and for the examination of milk, waters, and food products for the purpose of protecting the community against infectious disease. Any city or county laboratory established for the purposes set forth is subject to the approval of the State Department of Public Health and the director thereof is required to hold a license as a qualified laboratory technician issued by the State Department of Public Health in accordance with the provisions of law. The cost of establishment and maintenance of the laboratory is a legal expenditure from any city or county funds that are for disbursement under the direction of the city or county health officer for the protection of public health.

The special charter granted to the incorporated city of Los Angeles under the laws of the State of California, as amended, contains in Article XII, sections 150-154, the following provisions respecting the organization, responsibilities and duties of the city health department:

SEC. 150. The health department shall have the power and duty to supervise and control, under such ordinances as may from time to time be adopted by the city, and under the laws of the state and nation applicable within the city, the sanitary conditions and the general health of the city, and all matters pertaining thereto, including the sanitary condition of all schools, jails, hospitals and other public buildings, and all health establishments or institutions of whatever kind, whether public or private; and to enforce all ordinances and laws relating to public health and all rules and regulations of the department, and may call upon any police officer or officers at any time to assist in the enforcement thereof.

SEC. 151. The chief administrative officer of the health department shall be called the health officer of the city. He shall be a graduate of a reputable college of medicine and shall have had at least three years' experience in the administration of public health work. The health officer shall be appointed by, and may be removed by the board of health commissioners, subject in both appointment and removal to the civil service provisions of this charter. He shall devote his entire time to the duties of his office and shall receive no compensation in addition to the requirements of this charter, laws or ordinances. He shall perform such duties as may be necessary in the protection and preservation of public health under the direction of and supervision of the board as the said board may require.

The health officer at the time of the taking effect of this section shall be deemed to have the necessary qualifications required by the provisions of this charter, provided that said incumbent shall have held such position continuously for a period of six months immediately prior to said effective date and shall retain his position until removed for cause. If said incumbent shall have held said position continuously for a period of less than six months immediately prior to the taking effect of this section, then he shall, during the period of six months from and after the taking effect hereof, be deemed to be serving on probation and subject to the same regulations as other persons in the classified civil service serving under probation as provided elsewhere in this charter.

The provisions of this section shall be in lieu of the provisions of section 111 of this charter with respect to exemptions from the classified civil service. The provisions of subsection (a) of section 112 hereof shall apply to the removal, discharge and suspension of the health officer in lieu of the provisions of section 79 of this charter. (Amendment, 1937.)

SEC. 152. The health officer and all regularly appointed officers and employees of the health department shall have the right and power to arrest any person or persons who may violate any of the ordinances of the city pertaining to sanitation and health, and any of the rules and regulations of the department. It shall also be the duty of any police officer or policeman to arrest any person guilty of such violation.

SEC. 153. Any rules or regulations of the department for the control of communicable diseases shall be the same as those adopted by the State Board of Health for the same diseases.

The city charter provides for the maintenance of the activities of the various departments and agencies of the city government through a councilmanic appropriation system based upon a departmental city budgetary system. The executive head of each department or agency is required to prepare and recommend to the board of commissioners having supervision of the department, prior to the beginning of each fiscal year an annual departmental budget covering anticipated revenues and expenditures of the department conforming in so far as practicable to the forms and dates provided for in the city charter in relation to the general city budget.

The charter of the city of Los Angeles also provides for a bureau of budget and efficiency. The director of the bureau is authorized and empowered to investigate at any time the administration of the various departments of the city government for the purpose of submitting to the mayor and the city council, recommendations concerning the duties of the various positions in the departments, the methods and procedures thereof, the standards of efficiency therein and such changes as in his judgment will promote economy and efficiency in the conduct of the department. The director is also charged with the duty of assisting the mayor and the city council in their consideration of the annual budget and of any appropriations made consequent thereto and is charged with conducting studies and investigations having as their objective, assistance in the preparation and consideration of the city's annual general budget. All budgets prepared by department heads pass through the director of the bureau of budget and

efficiency in the course of transmission to the mayor and the director makes such recommendations thereon for the information of the mayor as are deemed necessary or desirable.

The charter provisions relating to the general city budget require each board of commissioners or officer supervising any department or branch of the city government, to submit to the mayor at such time as the mayor may prescribe (but not later than the first day of May of each year) a detailed estimate of the money required by the department or agency for the next ensuing fiscal year. The charter requires the mayor to submit with his recommendations to the city council on or before the first day of June of each year, a general city budget for the next ensuing fiscal year and requires the city council to immediately proceed to the consideration of the budgets submitted by the mayor; the city council may increase, decrease or omit any item or add necessary new items in any budget by a vote of the majority of its members. The charter requires that the city council shall, on or before the twentieth day of June of each year, adopt by resolution carried by majority vote, the budget as proposed by the mayor or as modified by the city council, to provide for the activities of the city government for the ensuing fiscal year beginning the following first of July.

The charter of the city of Los Angeles also provides for an independent branch of the city government for the purchase and acquisition of materials, supplies and equipment needed for the operation and maintenance of the various departments of the city government. The charter provides that all purchases of materials or supplies involving an expenditure of \$1,000 or less required for the use of any board officer or employee of the city shall be made from the lowest responsible bidder by the purchasing agent of the city upon receipt of requisition delivered to him and signed by the department officer or employee for whom the purchase is to be made. All such purchases involving an expenditure of more than \$1,000 shall be made from the lowest responsible bidder by the purchasing agent upon receipt of such requisition. However, the specifications on bids which ask for purchases involving a purchase in excess of \$1,000 must first have been approved by the purchasing agent and also by the department officer or employee for whom the purchase is being made. Whenever the above procedure can not be followed without loss to the city or prejudice to the public interest, any board officer or employee of the city may make emergency purchases on materials or supplies required for immediate use when such purchase does not exceed \$25, provided that such emergency purchases shall not exceed \$100 for any such board officer or employee during any one month.

The city council has by various ordinances given effect to carrying out within the corporate jurisdiction of the city the many duties required to be performed by the city health department and the city health officer under the constitution, general laws, Political Code and the Health and Safety Code of the State of California and the charter of the incorporated city of Los Angeles. These are set forth as Chapter III of the Municipal Code of the city of Los Angeles, entitled "Health and Sanitation," and comprise sixty pages of textual presentation and recording.

The legal authorization for the organization, responsibilities and duties of the city health department of Los Angeles accordingly is found to be derived from, and defined in, various parts of the following:

1. Constitution of the State of California.
2. General laws of the State of California.
3. Political (government) Code of the State of California.
4. Health and Safety Code of the State of California.
5. Charter of the City of Los Angeles.
6. Municipal Code of the City of Los Angeles.



LOS ANGELES EXTENDS OVER 450.75 SQUARE MILES—TERRITORIALLY THE LARGEST CITY IN THE UNITED STATES. CITIES THE SIZE OF CHICAGO, CLEVELAND AND DETROIT COULD BE PLACED WITHIN THE LIMITS OF LOS ANGELES AND LEAVE 37 SQUARE MILES UNTOUCHED

Organization

The health department of the city of Los Angeles is one of some twenty departmental divisions of the executive branch of the city government. It is presided over and supervised by a five-member health commission. The members of the health commission are selected and appointed by the mayor, subject to confirmation by the city council, for

a term of office of five years. The terms of office are staggered so that one appointment to the board is made annually. Following the appointment of the new member, the board annually reorganizes and selects one of its members to be its president and another to be its vice president for the current year. Vacancies occurring in the board's membership are filled by appointments for the unexpired term of office. Under the charter each commissioner is allowed a compensation of \$5 per meeting of the board attended; provided, that the maximum compensation may not exceed \$50 each in any one month; boards are required to hold not less than two meetings per month. The board of health commissioners hold regular weekly meetings and occasionally hold extra special meetings as necessary. The present membership of the board of health commissioners comprises two lawyers, one of whom is the president of the board; one doctor of osteopathy, who is the vice president of the board; one doctor of medicine and one business man.

The board of health commissioners is authorized to select and employ a secretary to the board whose duty it is to keep a record of all proceedings and transactions of board meetings, and to perform such miscellaneous secretarial and clerical work as may be required by the board and an accountant whose duty is to assist the board through the maintenance of cost-accounting records, review of budgets, and the preparation of special financial information whenever requested by the city council, city comptroller, the bureau of budget and efficiency, etc. The salary of the accountant, \$2,940 per annum, is fixed by the board subject to approval by the city council. At present the accountant also functions as the acting secretary to the board and his cost-accounting activities have been curtailed, due to economy. Formerly, the board issued annually a comprehensive cost-accounting report covering the various activities of the department which contained financial analyses of considerable interest and potential administrative usefulness. All commissioners, as well as the secretary to the board and the accountant for the board, are exempt from the civil service system.

In addition to presiding over and supervising the activities of the health department, the board of health commissioners is charged with the duty of adopting and promulgating any rules or regulations issued by the health department under competent authority of ordinance or law for the purpose of administering the department and for the management or control of matters concerning public health and sanitation within its jurisdiction. All proposed orders or rules and regulations require the approval of the majority of the board's membership for adoption. Such adoption is by motion, made and seconded by members, and put to vote by the presiding officer; such action is required to be entered by the secretary to the board in his record of the minutes of the meeting. Following adoption such orders or rules and regulations are required to be signed by either the president and the vice-president, or by all members of the commission, prior to promulgation.

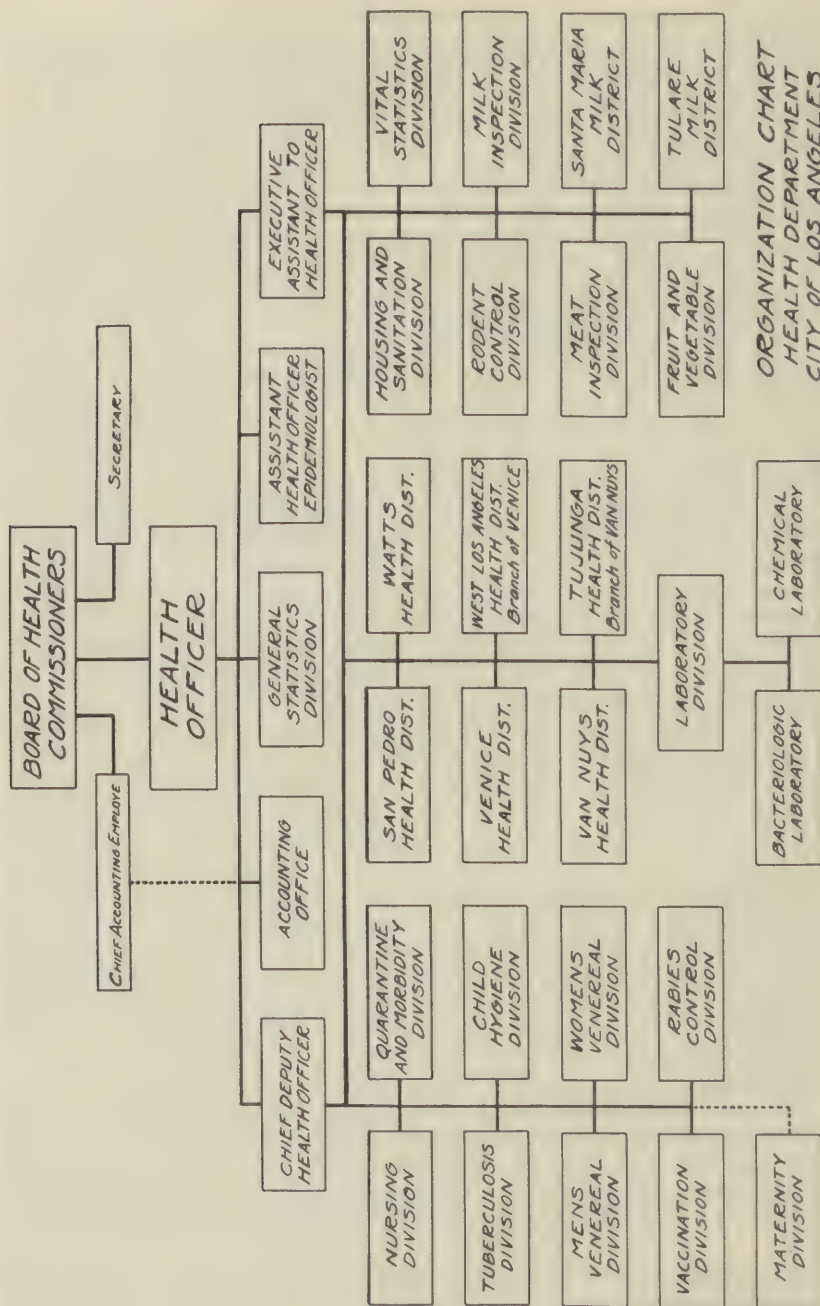
The city charter provides that the board of health commissioners shall select and the mayor shall appoint, subject to confirmation by the city council, a city health officer who shall be the chief administrative (executive) officer of the health department and who is charged with the detailed administration of the activities of the department and with carrying out the orders and policies of the board of health commis-

sioners. The position of city health officer is full-time and the city council has fixed the compensation for the position of city health officer at \$7,200 per annum. In 1937 the charter was amended to place the position of city health officer under the civil service system and the incumbent health officer was inducted into and acquired civil service status. The city health officer is a doctor of medicine who has served the city for twelve years and has had a total of twenty-five years' experience in public health administration; he has attained the age of 67 years, notwithstanding which he is still exceptionally active, both mentally and physically; however, under the provisions of the civil service system as prescribed by the city charter, his retirement on attaining the age of 70 years will be mandatory.

The city health officer under the direction and supervision of the board of health commissioners is empowered and required to administer the work of the department, to supervise and control the sanitary conditions and the general health of the city, and all matters pertaining thereto, including the sanitary conditions of schools, jails and other public buildings, all hospitals and health establishments or institutions of whatever kind, public or private, and to observe and enforce all laws and ordinances and all rules and regulations of the department relating to public health and sanitation; he has the right and power to arrest any person or persons who may violate any of such laws, ordinances, rules or regulations pertaining to the activities of the department. The city health officer is also charged with the preparation of annual budgets covering the needs of the department and is responsible for confining expenditures of the department to the amounts and purposes for which funds are appropriated. Only one-twelfth of the annual appropriation is available for expenditure in any one month (plus any unexpended balances from previous months); large expenditures for concentrated purchases or a large expenditure for the purchase of a costly item under this system administratively are deferred until the required amount is accumulated during the previous months; in emergencies, exemption from this restriction is obtainable through approval of such request made by the city health officer, by the city council and the mayor. The city health officer must approve all contracts for purchases, payrolls, and is responsible for the maintenance of personal records, auditing of invoices, preparation of demands upon city treasurer for payment (vouchers) and must account for all revenues of the department, which are covered into the city treasury for deposit in the general city funds account.

The activities of the health department and the responsibilities of the city health officer are administered through five major supervisory offices, namely: (1) office of the chief deputy health officer; (2) office of assistant health officer and epidemiologist; (3) office of executive assistant to health officer; (4) accounting office; (5) general statistics office.

The position of chief deputy health officer is full-time with annual compensation fixed by the city council at \$4,200. The chief deputy health officer becomes acting city health officer during the absence or disability of the city health officer. The present chief deputy health officer is a doctor of osteopathy who has not had any formal training in public health but who has had public health experience acquired



ORGANIZATION CHART
HEALTH DEPARTMENT
CITY OF LOS ANGELES

March 1, 1939

through service in various divisions of the department since 1925. Inasmuch as all medical officers of the city health department other than the city health officer are specifically exempt by charter from the civil service system, the chief deputy health officer does not have civil service status. He was selected for appointment to the position of chief deputy health officer by the present city health officer and was so appointed by the board of health commissioners, and the appointment was approved by the mayor. The chief deputy health officer has under his immediate direction and supervision all medical activities of the department and it is his duty to coordinate these activities in the central office and in the six health districts of the city. He supervises the activities of the following:

- (a) Public health nursing division;
- (b) Quarantine and morbidity division;
- (c) Division of tuberculosis;
- (d) Division of child hygiene;
- (e) Division of venereal diseases (male—female);
- (f) Vaccination division;
- (g) Division of rabies control;
- (h) Maternity division.

All advice on medical problems incident to the work of these divisions is cleared through him by the heads of the respective divisions. The administrative work of the chief deputy health officer includes the approval or disapproval of all requisitions (supplies, equipment or personnel) submitted by the directors of the various divisions coming under his supervision. Approved requisitions for supplies and equipment must be signed by the chief deputy health officer before being transmitted to the city purchasing agent. Approved requisitions for personnel similarly must be signed and are transmitted to the executive assistant to the city health officer. Prior to approval the chief deputy health officer is required to investigate all requisitions as to their necessity, adequacy and urgency and to ascertain from the accounting office that the funds are available for such expenditure.

In addition, he is responsible for the coordinating supervision of the health department's activities in the central metropolitan area and in the six regional health districts.

Each health district is contemplated to be, in effect, a regional miniature of the city health department carrying out within the district all the various activities of the department. In a city of the extent and amoeboid type of growth such as Los Angeles there are regional concentrations of population considerably removed from the center of the city which are more advantageously and economically served by such a decentralized pattern of public health administration.

The first health district was developed in the port area of San Pedro and included Wilmington; this concentrated area of population was located at the end of the "shoe-string," some 20 miles from the center of the city and connected to it by only a narrow, relatively uninhabited corridor. Following the establishment of the San Pedro Health District, similar health districts were developed for the Watts, Venice and Van Nuys areas. The center at Venice has established a branch at West Los Angeles and the center at Van Nuys has established a branch for the Tujunga area, and both of these branches appear des-

tinued to become full-fledged separate health districts. The exact location of the health district center is determined after a study of population trend, local traffic survey, and so forth, in the area.

The planned minimum unit of personnel for each district comprises one assistant health officer, three public health nurses, a supervising sanitary inspector, three sanitary inspectors and a clerk. This minimum in the case of the San Pedro Health District has been expanded to a total personnel of 19.

The district representatives of the various administrative divisions of the health department carry on their duties under the direction of the chiefs of those divisions, subject only to the general coordinating district supervision of the officer in charge of the health district. As now set up, the assistant health officer assigned in these health districts is not always the supervising individual in charge since in San Pedro, Venice and Van Nuys the chief sanitary inspector is placed in supervisory charge of all the activities and personnel in the district and the assistant health officer of the districts works under such immediate supervision. The Watts district is the only one where the assistant health officer is directly in supervisory charge of all the activities in that district, which is the proper arrangement.

The work of the various divisions supervised by the chief deputy health officer will be included in subsequent detailed discussions of the various special public health activities of the department. However, to complete the picture of organization of the offices and functions supervised by the chief deputy health officer, there is presented at this point a brief summary of the activities of these divisions.

Nursing Division

Inspecting hospitals and children's institutions.

Nursing service:

Tuberculosis, field and clinic.

Syphilis and gonorrhea control service, field and clinic.

Preventive disease control service, field and clinic.

Child hygiene control service, field, school and clinic.

Preschool control service, field, school, and clinic.

School control service, field, school (Parochial) clinic.

Ante and postpartum, field and clinic.

Medical nursing instruction service, clinic and field.

Quarantine and Morbidity Division

Quarantining and releasing of contagious cases and contacts.

Obtaining histories.

Instructing patients and contacts as to rules of quarantine.

Culturing diphtheria patients and contacts for release.

Investigating miscellaneous calls for non-quarantinable disease cases.

Assisting at group vaccinations.

Cyanide investigations.

Visiting the indigent sick for the purpose of supplying material assistance.

Searching of death records for contagion not reported.

Receiving calls for medical assistance and diagnosis and referring same to district doctors and recording reports on these cases.

Inspecting old baled newspapers shipped to the Orient.

(All activities and services rendered 24 hours daily.)

Tuberculosis Division

Administration and coordination of the various measures for the control of tuberculosis.

Diagnostic clinic service for the examination of known cases, suspects and contacts; using fluoroscope and X-ray.

Tuberculin testing.
Pneumothorax and other forms of collapse therapy for ambulatory cases.
Diagnostic consultation service to physicians.
Educational and instructional service.
Home service—instructional, medical and collapse therapy.
Case finding and recording.
Placement—sanatoria and hospitals.
Supervision of active cases and contacts under home care.
Supervision of ex-sanatoria patients.

Child Hygiene Division

Infant Welfare Service

Maintaining well baby conferences for weighing, measuring and diet advice.
Educational—individual instruction at conference, group instruction by talks and radio.
Physical examination—initial visit, re-examination as indicated.
Preventive medical service—immunization, diphtheria, smallpox, whooping cough.

Preschool Service

Educational—individual instruction at conferences, group instruction by talks and radio.
Physical examination—each visit.
Preventive medical service—immunization, diphtheria, smallpox.

Parochial Schools

Physical examination.
Preventive medical service—immunization, diphtheria.

Public Schools

Preventive medical service—immunization, diphtheria.

Men's Venereal Disease Division

Maintaining adequate facilities for examination and treatment of all persons residing in the city of Los Angeles infected with venereal disease and unable to finance private medical care.

Developing and furthering educational programs:

- a. Provide speakers and other means for public and quasi public groups such as schools, clubs, etc.
- b. Distribute pamphlets, pictures, publicity, newspaper articles to the general public and interested groups.

Providing consultation and special examination service to private physicians treating low-pay or indigent patients.

Providing social service facilities to follow-up and return to treatment of all lapsed and dangerous cases of syphilis for the public clinics and private physicians; tracing sources of infection and checking contacts; transmitting and obtaining historical records on patients transferred to other agencies or received from other agencies.

Checking and distributing to private physicians anti-luetic drugs.

Maintaining accurate statistical and epidemiological records.

Coordinating clinical, educational and social services with other agencies, federal, county, state and local, private.

Women's Venereal Disease Division

Maintaining adequate facilities for examination and treatment of all persons residing in the city of Los Angeles infected with venereal disease and unable to finance private medical care.

Examining dairy workers, bakers, food handlers and governmental agencies requiring clearance for work.

Examining for clearance for entry into boarding homes, schools or hospitals.

Prenatal examining and treating for venereal disease of infected women.

Collecting specimens from patients under care of private doctors, unable to pay for laboratory tests.

Social service assistance.

Educating, by distribution of pamphlets on syphilis and gonorrhea, and lectures to interested groups.

Vaccination Division

Vaccinating against smallpox and typhoid.

Caring, dressing and giving instruction after vaccinating.

Examining:

Groups of children for schools, camps, and nurseries.

Food handlers.

And taking throat cultures.

And issuing passport health certificates.

Children for readmittance to school after exclusion, for any reason.

Rabies Control Division

Investigating, quarantining and keeping under observation, all animals which have bitten people or other animals.

Cooperating with police department, receiving hospital and private doctors in treatment, investigation and recording of all cases where persons have been bitten by an animal.

Advising persons bitten to receive Pasteur treatment.

Posting quarantine notices where premises do not allow proper enclosure of animals.

Laboratory examination of heads of animals suspected of being rabid.

Maternity Division

Assistance to maternity division operating under county control is furnished as follows:

Laboratory facilities, such as Wassermann tests and urinalysis, etc.

Nursing service, ante and post-partum, in field and clinic.

Maternal hygiene instructions.

Sterilization of all instruments, dressings, etc.

The following table sets forth a summary of the status of the directors of the various divisions supervised by the chief deputy health officer:

Division	Director	Qualifications	Annual Salary	Service	Civil Service Status
Public health nursing	Chief nurse	P.H.N.	\$2,700	full-time	Yes
Quarantine and morbidity	Chief quarantine inspector		2,700	full-time	Yes
Tuberculosis	Assistant health officer	M.D.	3,600	full-time	No
Child hygiene	Assistant health officer	M.D.	3,120	full-time	No
Venereal disease (male)	Assistant health officer	M.D.	3,120	full-time	No
Venereal disease (female)	Assistant health officer	M.D.	3,120	full-time	No
Vaccination	Assistant health officer	M.D.	3,120	full-time	No
Rabies control	Veterinarian	M.D.V.	2,700	full-time	Yes
Maternity	Chief nurse			full-time	Yes
San Pedro Health District	Chief sanitary inspector			full-time	Yes
Watts Health District	Assistant health officer	M.D.		full-time	No
Venice Health District	Chief sanitary inspector			full-time	Yes
West Los Angeles Health District (at present operated as a branch of Venice)					
Van Nuys Health District	Assistant health officer	M.D.		full-time	No
Tujunga Health District (operated as a branch of Van Nuys)	Assistant health officer	M.D.		full-time	No

The second major supervisory office in the city health department is the office of assistant health officer and epidemiologist. The position of assistant health officer and epidemiologist is full-time with annual compensation fixed by the city council at \$4,800, and is exempt from civil service. The present assistant health officer and epidemiologist is 69 years of age and well preserved; he is a doctor of medicine with many years of reputable practical experience in the department in epidemiology and communicable disease. During the current year an assistant epidemiologist, who is an M.D. and a recent graduate in public health (C.P.H.), has been added; this position carries a salary

of \$3,600 per annum for full-time service and is exempt from the classified civil service. The activities of the office of assistant health officer and epidemiologist are as follows:

- Studying and controlling communicable disease and epidemics.
- Tabulating and keeping statistical data on communicable diseases.
- Answering various disease questionnaires for and preparing regular reports to the Director of State Department of Public Health.
- Making epidemiological surveys.
- Examining patients, histories, laboratory reports prior to checking in, and out, of all quarantinable and reportable diseases at hospitals.
- Searching death records for otherwise unreported epidemiological information.
- Consultation diagnosis of suspected cases of communicable disease upon requests of city or private physicians.
- Cooperating with doctors and nurses of the city school system under the Board of Education, particularly as regards prevention and control of communicable diseases.
- Investigating and reporting on institutional and industrial special health problems.
- Attending and participating in various medical and public health meetings.
- Conducting weekly diagnostic clinic at county general hospital.
- Teaching communicable disease technique and supervising field training.
- Addressing groups, giving radio talks, preparing medical articles for distribution.
- General supervision of district doctors who:
 - (a) Seek out contagious disease cases and confirm diagnosis requested by private physicians.
 - (b) Visit the quarantined contagious disease cases and indigent sick.
 - (c) Examine groups of children for camps and institutions.
 - (d) Give physical examinations of city employees for sick benefit.
 - (e) Immunize individuals and groups for diphtheria, smallpox, etc.

The third major supervisory administrative office is that of the executive assistant to the health officer. The position of executive assistant to the health officer is full-time with annual compensation fixed by the city council at \$3,600. The present executive assistant is about 50 years of age and has held the position since 1934. Prior to that he had long experience beginning in 1924 in the quarantine and rodent control divisions of the department. He has had no technical or professional education and only completed three years in high school. The position (not being filled by a medical officer) is in classified civil service. The duties of the executive assistant to the health officer are described by the title of the position and in practice he is the "good man Friday" to the health officer. Specifically, he is the director of personnel for the whole department and also WPA coordinator for the health department; he exercises supervision of all nonmedical and lay activities of the department; he is actively concerned with the assembling and presentation of the requirements of the department underlying the preparation of the annual budget; his duties also include maintenance of reference files of the various state laws, charter requirements, city ordinances, et cetera, concerning the preservation of public health and general sanitation. In addition to the foregoing specific executive duties, he also has administrative supervision over the division of vital statistics and the division of rodent control and the general sanitation divisions—milk inspection, meat inspection, fruit and vegetable inspection, and housing and sanitation. The work of these various divisions will be included in subsequent detailed discus-

sions of these special public health activities. However, there is presented at this point a brief summary of the activities of the divisions which are under the supervision of the executive assistant to the health officer.

Vital Statistics Division

Checking for accuracy items on each birth and death certificate.
Indexing birth and death certificates and burial permits.
Photographing certificates, in addition to do-overs and certified copies, letters, maps, graphs, newspaper clippings, as required.
Coding death certificates for cause of death, residence allocation, etc.
Mailing notices of birth registration, and supplemental reports to secure given names of children.
Searching records for schools, welfare bureaus, and the general public.
Filling mail orders.
Cashiering.
Making weekly, monthly, annual and special reports.

Milk Inspection Division

1. City.
Enforcing State Agricultural Code and city ordinances pertaining to dairy products in local milk shed (within 90 miles from city hall) and outside district (350 miles north to 220 miles south).
Inspecting dairies, consisting of the inspection of cows, barns, milk houses, equipment, methods, sterilization, personnel, general sanitary inspection and the collecting of bottled raw milk samples.
Inspecting plants, general sanitary conditions, methods, pasteurization operations, sterilization, sampling at receiving platform and collecting bottled milk samples, ice cream and other samples.
Inspecting transportation, sanitation of vehicle, protection of products and the collection of bottled milk samples.
Checking permits, labeling of products.
Investigating complaints.
2. Santa Maria Milk District.
All activities of the milk inspection division and routine laboratory tests related to milk and dairy products.
3. Tulare Milk District.
All activities of the milk inspection division and routine laboratory tests related to milk and dairy products.

Meat Inspection Division

Routine sanitary inspecting of all meat markets.
Examining meat to determine if same came from properly inspected sources for the purpose of passing upon its edibility.
Inspecting all sausage factories, meat processing plants, stamping of products.
Taking samples of ground meat to be tested in laboratory to detect preservatives.
Investigating all complaints.
Inspecting all vehicles transporting meat.
Inspecting all poultry, both live and dressed, in poultry slaughter houses, meat markets and in vehicles, for distribution.
Inspecting all fish handled in the city; at the municipal wharf, places where fish is received from fishing boats and inspecting fish canneries.
Checking new establishments, for processing, selling of meat and fish and for the slaughtering of poultry and rabbits.
Enforcing state laws and city ordinances.
Checking permits as to validity in all meat, fish, poultry and rabbit establishments.
Inspecting veterinary hospitals.
City veterinarian, entailing passing upon matters relative to diseased animals which may be offered for food.

Fruit and Vegetable Division

Inspecting produce entering the wholesale markets on Central Avenue, San Pedro Street, and the wholesale district, including cold storage plants, warehouses and freight depots.
Issuing condemnation certificates on all produce regarded as unfit for human consumption.
Routine sanitary inspecting all retail and wholesale fruit and vegetable markets, vehicles and canneries.
Investigating complaints.
Inspecting produce on vehicles.
Checking for permit on all produce businesses, including vehicles.
Inspecting fruit and vegetable canneries within the city limits.
Taking samples of produce suspected of containing poisonous spray residue.
Investigating all new markets as to compliance with regulations.
Passing on insect infestation of fresh and dried fruits, as to whether same affects the edibility of same.

Housing and Sanitation Division

Enforcing sanitation laws and ordinances dealing with:
Hotels, apartment houses, house courts, multiple and single dwellings.
Public and trailer camps, labor camps, and general sleeping quarters.
Restaurants, lunch stands, cafes, lunch vehicles, bakeries and bakery distributors.
General food manufacturing and processing, canneries.
Beverage, table water, bottling and similar plants.
Barber shops, cosmetological establishments and schools.
Laundries of all description and character.
Industrial plant and factory sanitation, including stores, etc.
Plumbing fixture maintenance and sufficiency.
Swimming pools, bath houses and beach sanitation.
Community sanitation and general nuisance abatement, including general public assemblage places.
Insect, vermin and the keeping of animals, poultry, etc.
Garbage, rubbish and general waste disposal.
Water samples, water shed and reservoir protection.
Food poisoning accidents.
Cooperating with and contacting all other city departments, also county, state and federal agencies when necessary.
Conducting educational campaigns by means of pamphlets, newspaper articles, radio, trade periodicals, pictures and by addressing groups, schools, etc.

Rodent Control Division

Inspecting periodically the north boundary of the city limits.
Keeping the rodent index, trapping, poisoning and shooting rodents and delivering them to the laboratory, tagged.
Locating areas where disease-bearing rats exist.
Securing the rat proofing of all food depots requiring health department permits.
Enforcing the rat guard ordinance at the Los Angeles Harbor, inspecting all crated and burlap wrapped imports.
Poisoning all buildings before they are demolished or removed, in cooperation with the building and safety department of the city of Los Angeles.
Maintaining a night garbage can inspection.
Keeping the State Health Department informed of rodent activities in Los Angeles City.
Inspecting all food establishments requiring state liquor permits.
Producing and exhibiting rodent control motion pictures.
Constructing and exhibiting rat-proofing models.
Maintaining a card index of all food establishments in Los Angeles.
Inspecting all plans of prospective food establishments submitted to the department of building and safety before permits are issued.
Supervising the spreading of poison bait in the harbor district and in the city owned parks.

The following table sets forth a summary of the status of the directors of the various divisions supervised by the executive assistant to the city health officer:

Division	Director	Qualifications	Annual Salary	Service	Civil Service Status
Vital statistics.....	Senior clerk.....		\$2,340	full-time	Yes
Milk inspection.....	Chief milk inspector.....			full-time	Yes
Meat inspection.....	Veterinarian.....	M.D.V.	2,700	full-time	Yes
Fruit and vegetable inspection.....	Chief inspector.....			full-time	Yes
Housing and sanitation.....	Director.....	L.L.B.	2,820	full-time	Yes
Rodent control.....	Assistant director.....		2,700	full-time	Yes

The accounts division is the fourth major administrative office of the city health department. At the present time this division is headed by the cost accountant of the board of health commissioners; it would appear that the position of cost accountant under the charter was one of personal service to the board members and not intended to be charged with any administrative responsibility under the city health officer; nevertheless, the situation has grown up whereby the cost accountant to the board of health commissioners also functions as acting head of the accounts division of the health department. The personnel of the division comprises three fiscal clerks who work under the supervision of the cost accountant. The division is charged with the preparation of the annual departmental budget and the administrative limitation and restriction of expenditures to the amounts and purposes for which funds have been appropriated. Under the budget system followed by the city only one-twelfth of the annual amount appropriated by the city council, plus any unexpended balance from the previous month in the same item, may be expended monthly. However, in emergency this budgetary expenditure rule can be modified upon approval by the city council and the mayor of an appropriate request of the city health officer. The accounts division is also charged with the keeping of personnel records, particularly as regards time and leave, and the preparation of the pay rolls of the city health department personnel for the signature of the city health officer. The accounts division also audits all invoices covering supplies and equipment and prepares all vouchers in payment therefor for the signature of the city health officer and transmission to the city treasurer for payment. This division also keeps an accounting of all revenues derived from the activities of the city health department; these revenues are deposited with the city treasurer to the credit of general city funds.

The fifth and last major administrative division of the city health department is the general statistics division which functions under the direct supervision of the city health officer. At the time of the survey the division was without a director in immediate charge owing to his absence on leave; there appeared to be some doubt as to whether, following expiration of leave, the director would return. He had been with the city health department for many years in charge of printing (multigraphing, duplicating, addressograph work) and the preparation and drafting of educational charts and posters. In 1936 the city health department installed in this division, Hollerith punching and tabulating equipment and employed a trained Hollerith operator.

There is observed a tendency toward the functional separation of the statistical work from the printing work of the division, the two operating more or less as separate units. The functions of the division might be summarized as follows:

Tabulating statistical information with the Hollerith system.

Analyzing statistical data for epidemiological studies, child hygiene surveys, birth and death rates, etc.

Preparing educational publicity matter, including charts, maps, posters, photographs and exhibits.

Printing of departmental forms, bulletins, reports, notices, etc.

There is a sixth but nonadministrative major division of the health department, the division of laboratories, which functions under the dual supervision of the chief deputy health officer on the one hand and the executive assistant to the health officer on the other. The head of the laboratory division is a doctor of pharmacy who has had long experience in public health laboratory administration. Prior to coming with the health department of the city of Los Angeles in 1924, he was connected with the District Health Department, Washington, D. C. The position is a full-time one with compensation fixed by the city council at \$3,600 per annum. The position is in classified civil service. The division of laboratories represents two laboratories; (1) bacteriological laboratory and (2) chemical laboratory; each of the laboratories is in immediate charge of its former director and prior to combination, functioned more or less as separate units. The present designation of the immediate head of the bacteriological laboratory is that of chief bacteriologist who holds a degree of doctor of medicine and who has had long practical experience, both in private and public health laboratories. The present designation of the immediate head of the chemical laboratory is chief chemist who appears to be adequately qualified for the position through academic, scientific and practical training and experience. The work of these two laboratories under the supervision of the director of laboratories will be included in subsequent detailed discussions of the various special public health activities of the department. However, to complete the picture of organization of the major offices of the city health department and their functions, there is presented in the following a brief summary of the respective activities of these two laboratories.

Bacteriologic Laboratory

Examination of cultures for diphtheria and streptococci, Vincent's angina, trichomonas vaginalis.

Examination of feces and urine cultures for enteric diseases including bacillary and amoebic dysentery.

Examination of smears for gonococci and darkfield examinations for treponema pallida, culturing material for gonococci.

Wassermann, Kahn and Laughlin tests for the diagnosis of syphilis.

Agglutination tests for typhoid, paratyphoid A and B, tularemia, undulant fever, typhus, etc.

Pneumococcus typing.

Examination of suspected rabid animals for negri bodies and the giving of rabies treatments.

Examination of sputum and other material for tubercle bacilli, including animal inoculations when necessary.

Examination of milk, water and beverages.

Examination of rodents for plague and tularemia.

Spinal fluids for meningococci, smears for leprosy, relapsing fever, malaria, etc.

Preparation of rabies vaccine and diphtheria toxoid.

Chemical Laboratory

Preparing pharmaceuticals for use in the various clinics of the department.
 Testing foods, liquors, etc., for adulteration and for toxic substances.
 Testing milk and dairy products for butterfat, solids not fat, etc.
 Urinalysis for maternity clinic patients.
 Testing miscellaneous substances.

The total number of persons employed in the city health department of Los Angeles at the time of this survey was 335; this number, however, was exclusive of an average of 135 employees of the United States Works Progress Administration assigned to various activities (principally clerical, nursing and rodent control in the city health department). The city health officer and all the personnel of the health department, with the exception of the WPA workers and the medical officers, are in the city's classified civil service. The average length of service of the entire personnel, exclusive of the WPA workers, was over 12 years; 65 per cent had served over 10 years and 4 per cent had served over 20 years in the department. The following table summarizes the classification and numerical distribution of the regular employees of the health department:

Classification	Number	Service	Civil Service	Remarks
Medical officers -----	24	full-time	No	
Visiting physicians -----	10	part-time	No	Compensation \$150 per month
Conference physicians -----	10	part-time	No	Compensation \$5 per conference
Clinicians -----	10	part-time	No	Compensation \$75 per month
Total medical -----	54			
Veterinarians -----	3	full-time	Yes	
Bacteriologists -----	7	full-time	Yes	
Chemists -----	3	full-time	Yes	
Laboratory assistants -----	5	full-time	Yes	
Total technical -----	18			
Nurses -----	76	full-time	Yes	
Social workers -----	5	full-time	Yes	
Quarantine inspectors -----	10	full-time	Yes	
Food and sanitation inspectors -----	113	full-time	Yes	
Clerical -----	48	full-time	Yes	
Custodial -----	11	full-time	Yes	(Janitors, maids)
Grand total -----	335			

The following table summarizes the total assistance received by the city health department from the Federal Works Progress Administration during the fiscal year ended June 30, 1938.

Project Number	Number Employed	Total Man-Hours	Labor Cost	Other Cost	Total Cost	Agency
HQ-6313—Rodent control -----	69	213,200	\$119,652	\$14	\$119,666	WPA
			9,060	8,354	17,414	CHD
Total -----	69	213,200	\$128,712	\$8,368	\$137,080	
C-9043—Health information and venereal disease -----	20	9,450	\$5,333	-----	\$5,333	WPA
			-----	-----	-----	CHD
Total -----	20	9,450	\$5,333	-----	\$5,333	
C-9289—Public health nursing -----	46	63,050	\$35,451	-----	\$35,451	WPA
			-----	-----	-----	CHD
Total -----	46	63,050	\$35,451	-----	\$35,451	
	135	285,700	\$160,436	\$14	\$160,450	WPA
			9,060	8,354	17,414	City
Grand total -----	135	285,700	\$169,496	\$8,368	\$177,864	

Facilities

The Los Angeles City Health Department occupies an irregular shaped, 10-story, steel-frame, brick structure erected some time ago upon a rather small lot located immediately adjacent to the north of the new city hall. The building was originally constructed and used, prior to acquisition by the city, as a general office building with a maximum number of small office rooms, narrow floor corridors and limited elevator facilities; it is scheduled to be demolished in the immediate future in accordance with the planned development now in progress of a modern and artistic civic center. The value of the land occupied by the health department building is carried on the city books at \$9,000 and the building at \$22,500; the equipment in the building is valued at 79,514, making the total book value of the plant \$111,014.

The building houses not only all the administrative activities of the health department but also the various service activities of the central health district serving the surrounding congested, downtown metropolitan area. The total floor space of the building would be approximately adequate for housing the administrative activities only, and the use of a considerable portion of the available space for service activities causes a marked degree of overcrowding in the space allotted for administrative purposes while at the same time failing to provide adequate space for the service requirements. The inevitable result is a general impression of congestion and confusion; clinic attendance overtaxes elevator capacity as well as congests the single main entrance and floor corridors.

The divisions of the city health department and the central health district service activities are at present distributed in the building as follows:

Main Floor	Central health district maternity center. (Conducted jointly by the maternity division of the Los Angeles County health department and the city health department.) Rodent control division. Printing office of the general statistics division.
Second Floor	Men's venereal disease clinic.
Third Floor	Women's venereal disease clinic. Sewing classes. Welfare conferences.
Fourth Floor	Nursing division. Hospital inspection unit. Division of child hygiene. Central health district well baby conferences.
Fifth Floor	Vaccination division. Division of milk control. Division of meat inspection. Division of fruit and vegetable inspection. Branch of municipal reference library.
Sixth Floor	Division of vital statistics. Division of quarantine and morbidity. Division of general statistics (except printing and drafting). Division of rabies control.
Seventh Floor	Offices and board room of health commissioners. Offices of secretary and accountant to the board. Administrative offices of city health officer. Administrative offices of chief deputy health officer. Administrative offices of executive assistant to health officer. Administrative offices of epidemiologists. Administrative offices of accounting division.

Eighth Floor	Division of housing and sanitation (office of city sanitary engineer). Bakery inspection unit.
Ninth Floor	Chemical laboratory. Bacteriological laboratory (anti-rabies vaccinations).
Tenth Floor	Division of tuberculosis. Central health district tuberculosis clinics.

Plans are now under consideration whereby the health department building will be evacuated and torn down and the health department will be temporarily quartered in rented space. Inasmuch as it is not likely that sufficient space for the needs of the health department can be rented under one roof, the department faces probable temporary dispersion of its activities until such time as a proposed new building for the health department can be constructed. Consideration of what accommodations should be provided in the new building involves not only definite decision with respect to policy in regard to the conduct of the various activities of the health department along a centralized plan or along a decentralized plan; it also brings up the question as to whether or not accommodations for the health department services rendered to the central metropolitan area should be provided for in the same building or in a separate building. Subsequent detailed discussions in this report of the various activities of the health department will be relevant, in part, to the answers to the foregoing questions.

The city health department under state law, is charged with the responsibility of providing facilities for the hospitalization of cases of contagious disease when necessary and for any necessary hospitalization of wards of the juvenile court. Arrangements are in effect whereby such hospitalization is provided for and furnished by the Los Angeles County General Hospital at the cost of the city.

Transportation needs of the city health department are provided for through the maintenance by the general city government of a transportation pool. Transportation from this pool is furnished upon requisition and the pro rata cost of the transportation is charged against the department.

There is one rather unique facility of very considerable potential importance provided for the use of departments of the city government. The board of library commissioners have established and maintained a municipal reference library in the city hall; a special branch of this library is maintained in the city health department building. The municipal reference library and its branches are available only to officers and employees of the city government, numbering, in all, some 16,000 persons. The library engages in general municipal reference work and provides a valuable source of dependable information on a very wide range of subjects of both scientific and administrative interest and guidance. The ready availability of such a dependable and broad source of reference information to administrative and scientific employees of the city government in general, and with respect to the branch library to the officers and employees of the city health department, constitutes a potential aid of inestimable value commensurate with the use made of it. The branch library at the city health department was inaugurated in July of 1934 and at the time of the survey it reached a total of 3,355 volumes, of which 1,901 volumes were of recent additions and all of which concerned matters pertinent to the work of the depart-

ment. At the time of the survey there was some question as to whether the board of library commissioners would continue to furnish this important reference library service to the health department without reimbursement of at least some of its cost from funds appropriated for the maintenance and operation of the health department. Inasmuch as both activities are supported by the taxpayers, it would appear to be pretty much a question of "taking away from Peter to pay Paul." Inasmuch as the various administrative departments of the city are servants of the taxpayer, it would appear that the department of libraries, which is supported in the main by taxpayers, should continue to furnish such a valuable service to the other city departments without reimbursement of costs, in the interests of the taxpayer.

Fiscal Provisions

The city health department is supported and maintained solely by appropriations made by the city council from the general purpose funds of the city. Each year the city health officer must prepare a budget showing in detail proposed expenditures deemed necessary for salaries, expense and equipment. The city health officer submits the budget to the board of health commissioners for review and approval. After making any change deemed necessary the board of health commissioners forwards the budget with its approval to the director of the bureau of budget and efficiency for review, approval and ultimate incorporation in the general budget for the entire city government. This city budget (which includes the health department budget) is forwarded by the director of the bureau of budget and efficiency with his recommendations to the mayor for review and final approval. The mayor then submits the budget to the city council for its consideration and action. The following is the budget originally approved (exclusive of supplemental requests amounting to \$6,497.71) for the maintenance and operation of the city health department for the fiscal year ended June 30, 1938:

Salaries and Wages

Junior cost accountant-----	\$2,940
Tabulating equipment operator-----	1,380
Assistant cashier-----	2,100
Junior clerks (6)-----	7,560
Junior clerk-----	1,440
General clerks (4)-----	6,720
General clerk-----	840
Senior clerks (4)-----	8,160
Senior clerks (2)-----	4,560
Secretary to health commission-----	2,400
Secretary-----	3,000
Junior stenographers (9)-----	12,960
Junior office assistants (3)-----	4,320
Senior stenographers (5)-----	8,315
Correspondence clerk-----	1,980
Junior storeroom clerk-----	1,140
Telephone operator-----	1,500
Laboratory assistants (2)-----	3,240
Senior chemists (2)-----	4,080
Chief chemist-----	2,820
Junior bacteriologists (3)-----	5,400

Salaries and Wages—Continued

Senior bacteriologist	\$2,220
Chief bacteriologist	2,040
Director of laboratories	3,600
Sanitary inspectors (54)	103,500
Sanitary inspector	960
Sanitary inspector	2,040
Barber shop inspector	1,920
Mosquito exterminator	1,500
Rodent control inspectors (11)	18,480
Chief sanitary inspector	2,160
Supervising inspectors (5)	11,100
Chief supervising inspector	2,400
Director of sanitation and housing	2,820
Rodent control supervisors (2)	4,080
Chief quarantine inspector	2,700
Assistant director rodent control	2,700
Sanitary engineer	2,700
Executive assistant to health officer	3,600
Meat, fruit and vegetable inspectors (31)	63,030
Meat, fruit and vegetable inspectors (2)	4,680
Milk inspectors (10)	19,850
Chief milk inspector	2,340
Nurses (65)	116,748
Supervising nurses (8)	15,360
Nurse instructor	2,100
Chief nurse	2,700
Head clinic nurse	1,920
Conference physicians (20)	6,500
Clinicians (10)	9,000
Physicians (10)	12,600
Assistant health officers (16)	49,920
Assistant health officer	3,600
Assistant health officer	4,200
Assistant health officer	4,800
Health officer	7,200
Assistant veterinarian	2,220
Veterinarian	2,700
Assistant veterinarian	2,400
Medical social worker	2,100
Medical social worker	1,200
Assistant medical social workers (2)	3,335
Veneral disease investigator	1,500
Caretaker	1,380
Caretaker	1,200
Janitors (3)	4,500
Janitor	1,040
Janitor	40
Janitor	140
Janitors (2)	1,200
Truck driver	1,500
Health commissioners (\$5 per meeting)	2,500
Total salaries and wages	\$612,878

Expense

Office supplies and expense	\$7,000
Postage	3,000
Printing	2,400
Dues and periodicals	300
Carfare and telephone	3,500
Mileage	33,000
Electricity	60

Expense—Continued

Water and ice	\$244
Gas	740
Janitor supplies	1,200
Photographic supplies	2,000
Laundry	1,600
Clothing	300
Provisions	450
Drugs	6,400
Laboratory supplies and expense	4,500
Hospital supplies and expense	4,000
Rodent control supplies and expense	2,000
Gasoline and lubricants	1,200
Auto repairs and supplies	350
Building repairs	300
Equipment repairs	600
Equipment rental	2,454
Rent	5,100
Traveling expense	120
Miscellaneous	120
Total expense	\$82,818

Equipment

Furniture	\$660
Filing equipment	850
Office machines	500
Medical and clinical equipment	350
Laboratory equipment	1,050
Automobiles (2 replacements)	1,300
Miscellaneous	100
Total equipment (capital outlay)	4,810
Grand total	\$700,506

The city council appropriates such funds as it deems necessary and expedient, to carry out such budgeted requirements as are approved by it. These appropriations for each city department are specific and itemized as to the purpose and the amount of the approved budgeted and authorized expenditure and these limitations must be administratively adhered to by the respective departments. By city ordinance the total amount appropriated must be administratively allocated for expenditure at the rate of not exceeding one-twelfth of the total amount available for the year, during any one month. However, unexpended balances remaining at the close of a month in any specific item are available for expenditure for the same purposes in succeeding months in addition to the pro rata allocation available for expenditure for the same purpose in each of such succeeding months. In emergency this monthly allocation restriction of expenditures may be modified upon request of the city health officer when approved by (a) the department's board of commissioners, (b) the mayor, and (c) the city council.

For the fiscal year ended June 30, 1938, the total budgetary appropriations made available by the city council for the maintenance and operation of the city health department was \$707,487.80, of which \$702,908.81 was expended. The expenditures for the year for the maintenance and operation of the city health department comprised the sum of \$618,442.47 for salaries of personnel, \$69,518.35 for operating

expenses and \$4,947.99 for equipment, making a total of \$702,908.81. This expenditure represented 47 cents per capita, or 5.5 cents per \$100 of taxation valuation of taxable property. Of the total amount of \$702,908.81 expended during the year, the sum of \$47,747.18, or 6.8 of the total, represented administrative and supervisory overhead (i.e., salaries and expenses of personnel not engaged in the actual personal performance of health services).

The following table presents an analysis of the total expenditures of the city health department for each of the last five fiscal years, according to principal objective activities, exclusive of capital outlay for equipment:

Total Expenditures for 5-year Period by Department Divisions

	1933-1934	1934-1935	1935-1936	1936-1937	1937-1938
Quarantine -----	\$83,372.56	\$87,368.79	\$89,197.90	\$95,233.08	\$103,812.52
Child hygiene -----	36,251.30	38,687.03	39,437.28	39,275.54	35,483.41
Maternity -----	22,497.97	3,950.24	4,059.22	4,233.46	4,385.18
Tuberculosis -----	31,774.99	33,490.81	37,246.77	44,410.81	51,210.32
Veneral disease -----	37,846.45	41,315.32	46,340.74	51,758.54	52,674.46
Nursing -----	115,164.04	112,713.65	115,923.86	118,316.43	124,925.17
Housing and sanitation -----	127,045.82	133,663.52	140,689.66	146,710.30	147,437.12
Rodent control -----	33,655.17	33,869.98	35,226.62	40,904.52	40,364.95
Milk inspection -----	50,817.40	41,799.94	41,397.03	42,350.10	42,214.84
Meat inspection -----	49,599.89	43,861.93	47,674.24	56,423.17	63,749.65
Fruit and vegetable inspection -----	11,263.02	16,105.96	16,763.24	16,783.62	15,746.12
Vital statistics -----	11,819.50	13,129.08	14,923.97	14,649.59	14,078.07
Other city departments -----	1,773.36	1,718.75	1,765.18	1,866.20	1,909.90
	\$612,881.47	\$601,675.00	\$630,645.71	\$672,915.36	\$697,991.71

The following table summarizes the income derived by the city from the activities of the health department for the year ended June 30, 1938, according to divisions, and character of service rendered. All revenues are deposited with the city treasurer in the general funds account.

Quarantine Division

Doctors and dentists registration fees -----	\$558.00	
Fees for physical examinations for passports -----	298.00	
Fees for physical examinations for dairy workers -----	1,206.00	
Fees for fumigation and extermination -----	425.00	
Miscellaneous revenues -----	59.35	\$2,546.35

Nursing Division

Boarding school and day nursery permits -----	\$497.00	
Hospital and sanitarium permits -----	1,790.00	2,287.00

Vital Statistics Division

Fees for certified copies—births and deaths -----	\$13,998.00	
Fees for permits to inter or remove -----	20,224.00	
Fees for search of vital statistics records -----	1,178.00	35,400.00

Fruit and Vegetable Inspection Division

Fruit and vegetable markets—wholesale, license fees --	\$2,902.00	
Fruit and vegetable markets—retail, license fees -----	7,233.00	
Fruit and vegetable trucks and wagons, license fees --	3,129.00	13,264.00

Milk Inspection Division

License fee: manufacturing wholesale distributor— butter	\$675.00	
License fee: manufacturing wholesale distributor— ice cream	3,925.00	
License fee: manufacturing wholesale distributor— cottage cheese and sour milk	675.00	
License fee: manufacturing wholesale distributor— malted milk drinks	325.00	
License fee: milk—wholesale producer	4,910.00	
License fee: milk—producer distributor	3,400.00	
License fee: milk—wholesale distributor	1,525.00	
License fee: milk or milk products—retail distributor	2,250.00	\$17,685.00

Meat Inspection Division

Fish broker and jobber license fees	\$100.00	
Fish market license fees	1,141.00	
Fish peddler license fees	640.00	
Hog ranch license fees	100.00	
Meat market (wholesale and jobbers) license fees	2,215.00	
Meat market (3 or more cutting blocks) license fees	4,450.00	
Meat market (less than 3 cutting blocks) license fees	10,930.00	
Meat peddler license fees	1,430.00	
Poultry dealer and broker (wholesale) license fees	300.00	
Poultry market (slaughter) license fees	3,400.00	
Poultry truck operator license fees	2,500.00	
Rabbits—selling and distributing license fees	180.00	
Rabbits—slaughter house license fees	15.00	
Tamale and tamale factory license fees	55.00	
Sausage and meat processing plant license fees	1,750.00	
Veterinary hospital permit fees	340.00	29,546.00

Bureau of Housing and Sanitation

Apartment and house court permit fees	\$23,890.00	
Bakery and bakery distributor license fees	2,925.00	
Barber shop license fees	8,855.00	
Bottling water license fees	880.00	
Box lunches—wholesale sandwich establishments license fees	30.00	
Candy and confectionery manufacturing wholesale license fees	490.00	
Cannery license fees	990.00	
Confectionery and soda fountains license fees	3,085.00	
Cold storage warehouses license fees	45.98	
Cosmetological establishment license fees	10,230.00	
Fertilizer manufacturer license fees	225.00	
Food and drink license fees	2,925.00	
Hotel license fees	7,036.00	
Laundries license fees	2,193.00	
Linen and towel supply license fees	150.00	
Mattress and pillow renovator license fees	220.00	
Medicine, drug or chemical sample distributor license fees	10.00	
Public bath license fees	88.00	
Public camp license fees	328.00	
Restaurant and lunch stand license fees	32,155.00	
Stable license fees	55.00	
Wiping rag laundry license fees	50.00	
Wiping rag dealers—wholesale and importer license fees	170.00	
Bottling license fees	1,240.00	98,265.98
Grand total		\$198,994.33

Recapitulation**Medical—**

Quarantine division	\$2,546.35
Nursing division	2,287.00

Vital statistics	35,400.00
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Inspection—

Fruit and vegetable division.....	13,264.00
Milk division	17,685.00
Meat division	29,546.00
Housing and sanitation division.....	98,265.98

\$189,994.33

**Recapitulation of City Income Derived from Activities of the Health Department
for the Last Five Fiscal Years**

	1934	1935	1936	1937	1938
Medical—					
Quarantine division.....	\$3,068.55	\$1,708.21	\$1,215.50	\$1,258.00	\$2,546.35
Nursing division.....	2,497.00	2,240.00	2,367.00	2,358.00	2,237.00
Vital statistics.....	27,271.50	30,580.50	32,784.00	36,787.50	35,400.00
Inspection—					
Fruit and vegetable division...	13,929.00	13,929.00	14,863.00	13,221.00	13,264.00
Milk division.....	14,180.74	22,766.25	19,969.26	19,280.00	17,685.00
Meat division.....	4,456.93	26,681.00	27,630.00	29,031.28	29,546.00
Housing and sanitation division.....	62,840.00	102,083.54	105,039.31	101,730.98	98,265.98
Miscellaneous	94.30	-----	-----	23.28	-----
	\$.114,409.02	\$199,988.50	\$203,868.07	\$203,690.04	\$198,994.33

While public health activities should be evaluated from solely a public health viewpoint, nevertheless it is only natural particularly on the part of laymen, to view with greater equanimity expenditures for activities producing the greater revenue regardless of the relative public health importance or need for such activities.

There are two schools of thought in regard to this matter. One school believes that the cost of the public health supervision of businesses should be assessed against those businesses via license fees, etc., inasmuch as the conduct of the business is motivated by the profits to be gained and if the business brings cost for any necessary governmental supervision to protect the general public, that cost should be collected from the business rather than be borne by the taxpayer and public funds.

The other school of thought holds the view that the cost of any governmental activities deemed necessary for the protection of the general public, should be borne by the taxpayers and public funds (to which business is a heavy contributor).

It is doubtful whether these two opposing views will ever be reconciled—it is another case of “east is east, west is west, and ne’er the twain shall meet.” However, one might choose a middle course; i.e., accomplish the governmental supervision deemed necessary for the protection of the general public at public cost wherever the business concerned is of the essential type—almost a public utility—such as milk, meats and other practically universal and necessary foods; and on the other hand, accomplish the governmental supervision deemed necessary for the protection of limited public patrons at the cost of the nonessential, nonuniversal business through a license fee system. Of course, the cost of minor activities accomplished for the convenience or

personal interest of the individual, should be at the cost of that individual—such as physical examinations for passports, searches and certificates of births, deaths, marriages, etc.

In any event, the following table summarizes the present situation in this respect as regards the activities of the Los Angeles City Health Department for the fiscal year ended June 30, 1938.

Activity	Estimated Relative Public Health Importance	Public Expenditure	Per Cent of Total Ex- pended for Public Health	Revenue Derived from the Activity
Quarantine -----	(a)	\$103,812	14.8—	\$2,546
Nursing -----	(a)	124,925	17.8—	2,287
Vital statistics -----	(a)	14,078	2.0	35,400
Milk inspection -----	(a)	42,215	6.0	17,685
Meat inspection -----	(b)	63,749	9.7—	29,546
Fruit and vegetable inspection -----	(c)	15,746	2.2+	13,264
Housing and sanitation inspection -----	(c)	147,437	21.0—	98,265
Maternity-child hygiene inspection -----	(a)	39,868	5.7—	----
Tuberculosis -----	(a)	51,210	7.3—	----
Venereal disease -----	(a)	52,674	7.5—	----
Rodent control -----	(c)	40,364	5.7+	----
Total for -----	(a)	428,782	61.0	57,918
Total for -----	(b)	63,749	9.7+	29,546
Total for -----	(c)	203,547	29.0	111,529

STATISTICAL ACTIVITIES

By P. A. SURGEON J. E. DUNN, U. S. Public Health Service

The collection, recording, analysis, and interpretation of vital statistics data, completely and accurately, is an essential function of a health department. It offers the best means whereby the occurrence, nature and extent of health problems can be determined and, over a period of time, it will indicate how effectively public health activities are meeting these problems. In this section of the report will be discussed the statistical work of the health department, including vital statistics, and comments will be made as to what changes or expansion of present activities seem indicated as a result of this survey.

It is very difficult to present a comprehensive visualization of the various statistical activities of the city health department. There are two divisions of the city health department specifically engaged in statistical activities—the division of vital statistics and the general statistics division. The division of vital statistics concerns itself solely with birth and death registration and related activities. The general statistics division's statistical functions are described by its name and will be discussed separately later on in this section; however, it has Hollerith equipment for statistical analysis which is partially utilized by the other divisions. The division of laboratories independently maintains considerable statistical work both for themselves and for the rodent control division; and the office of the assistant health officer and epidemiologist also independently maintains considerable statistical work, as does the quarantine and morbidity division which receives all morbidity reports and performs its own statistical work in connection therewith. There is a great deal of overlapping and duplication in the statistical work of these various divisions which could and should be centralized in one statistics division.

Division of Vital Statistics

The division of vital statistics of the Los Angeles City Health Department is primarily concerned with the registration of births and deaths occurring within the city of Los Angeles. It also accomplishes certain related functions, such as issuing burial permits, issuing certified copies of birth and death certificates, et cetera. In addition to these functions which are required by law, the division of vital statistics makes statistical tabulations of births and deaths for the information of the various other divisions of the health department, and interested groups and individuals. Morbidity reports are not handled by the division of vital statistics.

Personnel

The health officer of the city of Los Angeles under state law is the local registrar of births and deaths for the entire city. The director of the division of vital statistics is appointed deputy registrar by the health officer and is in direct charge of the birth and death registration

activities of the department, under the general supervision of the executive assistant to the city health officer.

The present staff of the division of vital statistics, together with the salary and principal activities of each, is presented in the following:

Title	Civil Service Rating	Annual Salary	Duties
Director (Deputy Registrar)	Senior Clerk	\$2,280	Direction and supervision of the work of the whole division.
Assistant Deputy Registrar	Senior Clerk	2,040	Direction of counter work—searching of records and making certified copies of births and deaths.
Coding Clerk	Junior Clerk	1,500	Responsible for coding the causes of death on all death certificates according to the International List of Causes of Death.
5 Counter Clerks	Junior Stenographers	1,500	Three are counter clerks exclusively—search records and make certified copies of birth and death records. One is cashier and stenographer for the director. One is retro-graph operator and under-study for the coding clerk.
Clerk (Part-time)	General Clerk	840	Issues burial permits at Georgia Street Receiving Hospital. Types birth notifications to be mailed to parents.

The director of the division of vital statistics has been with the city health department since 1920, and in his present position (deputy registrar) since 1927. The assistant deputy registrar has been in the division since 1920; the coding clerk since 1933; and the various stenographers anywhere from nine years to a few months.

None of the members of the staff of the division of vital statistics has had any formal training in vital statistics except the assistant deputy registrar and the coding clerk. These two employees have recently completed a six weeks' course given for vital statistics registrars at the University of California.

In addition to the regular staff of the division of vital statistics there are a number of sub-registrars located at various points over the city. Some of these are field personnel of the health department who act as sub-registrars in addition to their other regular duties; others are voluntary sub-registrars who find it a convenience to perform this service. A list of these sub-registrars and their locations is given below:

Part-time Subregistrars (Full-time Employees of the City Health Department)

Sanitary inspector	Venice Health District
District office clerk	San Pedro Health District
Sanitary inspector	Van Nuys Health District
Sanitary inspector	West Los Angeles Health District

The part-time clerk of the staff of the division of vital statistics spends a half-day each day at the Georgia Street Receiving Hospital (operated as an independent unit by the City Council primarily for emergency work for the city's fire and police forces) where he serves as a sub-registrar.

Voluntary Subregistrars (Outlying Districts)

Physician	Pacoima
Physician	North Hollywood
Undertaker	Canoga Park

None of the voluntary sub-registrars receive any pay from the health department for their registration activities.

Facilities

The division of vital statistics is quartered in five rooms on the sixth floor of the city health department building. Two rooms are used for filing bound volumes of birth and death certificates. One room is equipped with a counter and cashier's window for serving the public; three counter clerks and the assistant deputy registrar have desks in this room. Another room serves as the director's office. In addition this room is used by the director's stenographer and the coding clerk, and it also serves as a public waiting room for the convenience of any persons required to wait for any length of time while being served. All vital statistics tabulations and reports are also filed in this room. The fifth room contains the retrograph equipment.

Most of the bound volumes of records of deaths and births are kept on open wooden shelves and are thus unnecessarily exposed to the risk of destruction by fire. These records are invaluable and every precaution should be taken to preserve them. They are legal documents which serve a score of essential purposes and are becoming increasingly important in the face of present-day social legislation. The safeguarding of the records filed in the Los Angeles City Health Department are doubly important because copies of birth and death certificates are not sent to the county recorder's office, which is the usual practice throughout the state in accordance with the requirements of state law. The city health department building in which these records are filed, while fairly old and poorly adapted to its present usage, is rated, however, as of fireproof construction.

Fees

The State Vital Statistics Registration Law provides that state or local registrars shall supply certified copies of birth and death certificates to applicants for which a fee, the amount of which is to be established by the State Director of Public Health but not to exceed \$1.50, shall be collected; the law also provides that a fee, the amount of which is to be established also by the State Director of Public Health but not to exceed \$1.50 per hour or fraction thereof, shall be collected for an unsuccessful search of the records for a birth or death certificate. The fee for a certified copy of a birth or death certificate has been established at \$1, and for a search of the records at \$1 per hour or fraction thereof.

The division of vital statistics of the city health department also charges fees for issuing various permits for the disposition of the remains of the deceased, as follows:

Permit to bury or cremate	\$1.00
Removal and transit permit (where the remains are to be interred outside the city)	1.00
Permit for removal of a disinterred body	1.00
Permit for removal of cremated remains50

During the fiscal year 1937-1938 the income from these various fees amounted to the following:

Certified copies of birth and death certificates	\$13,988.00
Permits to inter or remove	20,224.00
Search of vital statistics records	1,178.00
Total	\$35,390.00

This money is accounted for and turned into the city treasurer for deposit in the general fund of the city.

Activities

Some idea of the volume of work performed by the division of vital statistics may be gained from the fact that about 21 per cent of all births and deaths occurring in the entire State of California are registered with the Los Angeles City Health Department. An average of about fifty certified copies of births and deaths and sixty-eight burial permits are issued every day.

All original birth and death certificates for births and deaths occurring in the city of Los Angeles are filed either with the division of vital statistics of the city health department or one of the subregistrars. The subregistrars immediately forward all certificates filed with them from their respective districts to the office of the division of vital statistics. The subregistrars at Venice and San Pedro make and keep on file copies of birth and death certificates that are filed with them, while the other subregistrars do not; these two subregistrars are authorized to issue certified copies of any birth and death certificates which have been filed with them. All subregistrars issue burial permits when they have in hand properly executed death certificates; this service is limited for convenience of morticians in the outlying districts.

All birth and death certificates are carefully scrutinized in the division of vital statistics for any items of information that may have been omitted, apparent inaccuracies in the recorded data, or unsatisfactory terminology for causes of death given on death certificates. Photostatic copies are made of the final completed certificates and these are bound and filed in the city health department. The original certificates are mailed to the State Registrar in the Bureau of Vital Statistics of the State Department of Public Health, for each month on or before the fifth of the succeeding month.

An alphabetical index of the birth records on file is kept on yearly basis to facilitate searching the records for certified copies of birth certificates. The father's surname is usually used for indexing; if this is unknown or differs from the name of the infant, as may be the case in illegitimate births, the mother's maiden name is used. A similar alphabetical index is maintained of all death records, by surname of the deceased.

According to the State Vital Statistics Registration Law, local registrars are required to send a copy of all birth and death certificates to the county recorder's office for a special county record. However, the division of vital statistics of the Los Angeles City Health Department has not been doing this for many years, by special permission from the State Registrar, because the county recorder's office has lacked the necessary filing space for storage of these records.

In addition to the collecting of birth and death certificates, checking the contained information, and filing copies of all such records as required by law, the division of vital statistics makes certain tabulations of the vital statistics data contained in these records. All death certificates are reviewed by the coding clerk and the cause of death classified according to the International List of Causes of Death and the Manual of Joint Causes of Death. Prior to 1936 all tabulations of vital statistics were done manually. In that year the city health department installed Hollerith punching and tabulating equipment for the use of the general statistics division and the services of the trained punching and tabulating machine operator were made available to the division of vital statistics. Beginning in 1936 all birth and death certificates have been sent to the general statistics division and pertinent vital statistics data placed on punch cards. These punch cards have been used for making certain tabulations for births and deaths, but the vital statistics division has continued to make manually, monthly and annual tabulations of deaths by cause, age group, sex and race. Further comment on this duplication of work will be found elsewhere in this report.

The occurrence of births and deaths of nonresidents within the city of Los Angeles has become of increasing importance in recent years, especially since completion of the new Los Angeles County Hospital. This huge institution of more than 3,000 beds serves the entire county for the hospitalization of indigents and, since it is located within the limits of the city of Los Angeles, all births and deaths occurring there are registered with the city health department. During the fiscal year 1937-1938, 21.8 per cent of all the deaths, and 22.3 per cent of all the births, occurring in the city of Los Angeles were of nonresidents. The division of vital statistics makes a separate tabulation of nonresidents and has been computing so-called "adjusted rates" for births and deaths, using only resident figures. Unfortunately, a satisfactory arrangement has never been evolved whereby births and deaths occurring anywhere in Los Angeles County can be allocated to the place of residence. It is shown elsewhere in this report that there are almost as many resident births and about half as many resident deaths occurring outside the city of Los Angeles as there are nonresident births and deaths within the city. These Los Angeles resident births and deaths occurring outside of the city should be included in the computation of "adjusted rates"; otherwise the so-called "adjusted rates" will be lower than they should properly be.

In the following paragraphs the vital statistics activities of the health department will be discussed from the standpoint of appraisal in accordance with the "Appraisal Form for Local Health Work" prepared by the Committee on Administrative Practice of the American Public Health Association.

Birth Registration

The births occurring in the city of Los Angeles, generally speaking, are registered with the division of vital statistics of the city health department in a reasonably complete manner.

The greatest weakness of the procedure for handling birth records in the city health department is the failure to check the completeness of birth reporting. Infant deaths are not checked against the birth records to see whether the deceased infant had been recorded as a birth. Antepartum and infant records in the nursing and child hygiene divisions are not checked against the birth records to determine whether the corresponding birth records are on file. Practically the only check the vital statistics division has on the completeness of birth reporting is the fact that all school children are required to present a card showing they have a birth certificate on file before they are admitted to school.

Birth registration after the first year can only be accomplished in the State of California by court order. During the fiscal year 1937-1938 there were 69 births registered by court order with the Los Angeles City Health Department. A search of these records for two of the months during that year showed the most recent birth date to be 1921. Apparently recent births are being reported fairly completely. A state-wide mailing card check of birth reporting in the State of California by the U. S. Census Bureau in 1934 and 1935 revealed that birth reporting was well over the required 90 per cent complete. The city of Los Angeles exceeded the state average. There is every reason to believe that birth reporting in Los Angeles is reasonably complete but the health department is not using such means as it has at its disposal for checking its records for every birth that comes to the attention of the various divisions and personnel of the department.

In the appraisal of the birth registration activities of the city health department for the city of Los Angeles, a score of 6 points out of a total of 13 can be allowed. The points lost were for failure to make use of means of checking the completeness of birth registration.

Analysis and Use of Birth Statistics

Over 20 per cent of the births occurring in Los Angeles are non-residents. Obviously these should be excluded from the tabulations of Los Angeles city births. On the other hand, almost 20 per cent of all births of Los Angeles residents occur outside the city and these should be included in the tabulations of Los Angeles city births to get an accurate record of resident births. It has been the practice of the division of vital statistics of the city health department to compute so-called "adjusted" birth rates, infant mortality rates, etc., using only the births of residents occurring in the city. Since almost a fifth of the resident births are not entering into the calculation of these rates there is a considerable error.

The Los Angeles County Health Department has not been making allocations of births to place of residence and those births of county residents occurring in the city, which are excluded as nonresidents in the city health department tabulation, are therefore not being included in any tabulation. In other words, the city is excluding births of county residents living outside the city, but the county is not includ-

ing them in its tabulations. A means should be devised whereby births occurring anywhere in Los Angeles County can be allocated to the place of residence. This might be accomplished if each registration area in the county would send copies of all nonresident birth records to the registration area in which the infant is resident.

Birth certificates received in the vital statistics division of the city health department are sent to the general statistics division to have certain of the information they contain placed on punch cards. These are used to make the monthly and annual tabulations of births. There is no tabulation made, however, of stillbirths.

Since the negro population of Los Angeles is less than 5 per cent of the total (3.1 per cent at the time of the 1930 Census), it might not be considered necessary to make separate tabulations of births by color, although this race represents 45,000 of the population; the Mexican population, however, constituted 7.8 per cent of the total city's population in 1930 and this group unquestionably is large enough to warrant special statistical analysis of its births, but this is not done. It has been shown elsewhere in this report that the Mexican population has a high birth rate and a high infant mortality rate. It is also shown that, in contradistinction to the rest of the population of Los Angeles, there are more deaths among Mexican infants during the 2-11 months age period than there are during the first month of life. These facts are of vital importance for the proper administration of an infant welfare program and deserve exhaustive statistical study.

In the appraisal of the analysis and use of birth statistics by the city health department a total of four points can be scored out of a possible eleven. Part score could be allowed for tabulation of births according to residence because the vital statistics division goes to considerable effort to determine whether births registered from the city are residents or nonresidents. Proper tabulation of resident births only awaits a suitable arrangement with other registration areas in the county and state so that births of city residents occurring elsewhere can be included. Failure to make an annual tabulation of births by months meant the loss of a point in score, although such a tabulation could be readily prepared from the monthly tabulations of births. The complete absence of tabulations of stillbirths by kind of obstetrical care, and by months resulted in no score for that item.

A great deal of additional valuable information could be obtained from a more complete analysis of birth records than is now being carried on by the division of vital statistics and the general statistics division of the Los Angeles City Health Department. Some of this already has been indicated in the preceding discussion. Additional comments and suggestions will be found later in this section of the report.

Death Registration

The registration of deaths occurring in the city of Los Angeles with the division of vital statistics of the Los Angeles City Health Department is carried on, as a whole, in a satisfactory manner. Death certificates received are checked for completeness and accuracy and a reasonable effort is made to obtain information that is lacking, or to secure corrections of apparent errors. The causes of death are checked

by a coding clerk and if diagnoses are found that are not satisfactory for any reason, the physician signing the death certificate is contacted. There is every reason to believe that the registration of deaths in Los Angeles is reasonably complete but the city health department has not made use of the means it has available, for checking this.

There has been no check on the completeness of the reporting of deaths occurring in the city of Los Angeles in recent years, nor has the division of vital statistics attempted to make use of the limited means available for keeping a continuous check on death registration. Burial permits are not issued unless a death certificate has been filed and all cemeteries are required to make a weekly report of all interments to the city health department; these reports should be checked against the death records to see that they have been properly registered. All newspaper reports of accidental deaths should be checked against the deaths registered to determine whether a death certificate has been received.

It is not a routine practice of the division of vital statistics to check deaths of women of child-bearing age against live birth and stillbirth certificates.

Morbidity reports for the reportable diseases are not handled by the division of vital statistics and consequently deaths from the reportable diseases can not be checked against the morbidity reports by the personnel of the division. However, a clerk from the quarantine and morbidity division visits the division of vital statistics and reviews the death certificates filed each week and takes down the names of all persons who have died from a reportable disease; these names are then checked against the morbidity case reports to determine whether any of them were not reported as a case before death. When a case report is not found one is made up in the quarantine and morbidity division and sent to the State Department of Public Health. The physician, or other person who neglected to report the case, is contacted and asked for an explanation of his failure to perform his lawful duty only where the unreported case is a quarantinable disease or when the offending person has been repeatedly negligent.

The checking of deaths from reportable diseases against morbidity reports does not include tuberculosis deaths. These morbidity reports are handled by the tuberculosis division and it has not been a routine procedure for that division to check tuberculosis deaths against its case file.

In the appraisal of death registration activities of the city health department for the city of Los Angeles, a total score of eleven points out of a possible eighteen can be allowed. The failure to make a satisfactory check of the completeness of death reporting and failure to routinely check tuberculosis deaths against case reports accounted for the points deducted.

Analysis and Use of Death Statistics

Approximately 20 per cent of the persons dying in Los Angeles are nonresidents of the city. On the other hand there is evidence to indicate that about 11 to 12 per cent of all deaths of residents occur outside the city. Obviously it is very important that the tabulations of deaths for the city of Los Angeles be limited to, and include all, resi-

dents if the death rate from various causes is to be accurately determined. The division of vital statistics of the city health department is very careful to check the residence address on all death certificates to determine whether the deceased was a resident or nonresident of the city and to exclude nonresident deaths. A means has not been devised, however, for including deaths of residents that occur outside the city. The so-called "adjusted" death rates computed by the city health department, therefore, include only resident deaths occurring in the city and are subject to error because the 11 to 12 per cent of resident deaths occurring outside the city, have not been included.

The nonresident deaths excluded from the city health department tabulations suffer the same fate as the nonresident births in that they are not included in any tabulations because they are not referred to the registration area of which they were residents.

The death certificates received in the vital statistics division are sent to the general statistics division, after they have been completely checked, and the information they contain is placed on punch cards. These punch cards are used for making monthly tabulations of deaths by certain causes, racial groups, and age groups. In addition to this the vital statistics division makes a monthly manual tabulation of deaths by cause, age groups, sex, important color and racial groups, and the total number of resident and nonresident deaths from each cause. There is a complete duplication of the work of the mechanical tabulating unit by this manual tabulation except that the mechanical tabulation includes a breakdown of resident deaths occurring in the city of Los Angeles by certain causes of death and by color. Beginning in 1938, a separate tabulation of deaths occurring under one month of age has been made from the punch cards, but a breakdown of this group into age groups of days and weeks has not been made.

The annual summary of the monthly manual tabulations of deaths by cause, age groups, sex, and race or color is made on a fiscal year rather than a calendar year basis. The accepted practice in the U. S. Bureau of the Census, the California Department of Public Health and most other state and local health departments, is to use the calendar year as the time interval for vital statistics purposes. The city health department should change to the calendar year for its annual tabulation of births and deaths so that its vital statistics data will cover the same time period as vital statistics in other health jurisdictions. This is essential in making comparative studies of vital statistics for Los Angeles with other areas, and comparing local tabulations for the city of Los Angeles with those of the State Department of Public Health and the U. S. Census Bureau.

Only eight age groups are used in the tabulation of deaths by cause and age. The span of these age groups varies from 1 to 25 years instead of the usual uniform 5-year groupings. It has already been pointed out that the deaths under 1 year were first broken down to show the deaths under 1 month in 1938 but that this latter group has not been broken down into age groups by days and weeks. The tabulation of deaths into the two sex groups is broken down by cause of death, but the age groupings of the deaths in each sex group are not tabulated. For example the age distribution of deaths from pulmonary tuberculosis among males could not be determined from the present tabulations.

Similarly the tabulation of deaths by cause for the various racial and color groups does not show the age and sex distribution of these deaths. Another illustration: the number of deaths from pulmonary tuberculosis for the various age groups among negro males could not be determined from the present tabulations; however, the percentage of negroes in the total population of Los Angeles is sufficiently small not to exert any great influence on the vital statistics for the entire population; moreover, an estimated total population of approximately 45,000 negroes would seem to warrant separate statistical treatment. The Mexican population is certainly large enough to require separate analysis of its vital statistics. It has been shown elsewhere in this report, that available data would seem to indicate that the Mexican population has health problems that vary considerably in their relative importance and age grouping from those of the white and negro population.

Puerperal deaths are shown by cause in the general tabulation of deaths but there is no analysis made of these deaths by "kind of obstetrical care." It is not a routine practice in the city health department to make an annual tabulation of deaths for the ten numerically most important causes of death. A weekly, monthly, and annual tabulation is made, however, of deaths from each of the reportable diseases.

Most of the graphs and charts for the various divisions of the health department are made by the director of printing work in the general statistics division. Graphic charts are available in various storerooms of the city health department showing over a period of years the total death rate, deaths from the various individual reportable diseases, infant mortality rates, changes in the relative importance of the principal causes of death through the years, et cetera. None of these charts have been brought up to a date more recent than 1936, however, with the possible exception of one or two of the more important quarantinable diseases.

In the appraisal of the analysis and use of death statistics by the Los Angeles city health department a total score of 17 points can be allowed out of a possible 38. The deficiencies responsible for the loss of points have been indicated in the preceding discussion. The greatest loss of points are the ten that could not be allowed because up-to-date graphic charts are not being maintained showing the total death rate, deaths from certain causes, etc.

Summary—Birth and Death Registration

In so far as the registration of births and deaths is concerned, it may be said that the Los Angeles city health department is carrying out that function fairly satisfactorily. It would seem that the use of voluntary subregistrars in certain areas of the city is a practice that should be discontinued as it involves the delegation of a legal responsibility to a person who is not an official representative of the city health department.

Clerks should be provided in the various health district offices to act as part-time subregistrars in addition to other duties, but they should be responsible for their registration activities to the deputy registrar.

Certified copies of birth and death records should only be issued from the central office and thus relieve subregistrars of the necessity of keeping duplicate records. Requests made to the subregistrars for

certified copies could be transmitted to the central office for the convenience of persons in outlying areas of the city.

The present practice of excluding residents from the tabulations of births and deaths occurring outside of Los Angeles is not defensible and a means should be devised whereby births and deaths of Los Angeles residents occurring outside the city will be included.

Likewise the practice of failing to forward births and deaths of nonresidents occurring in the city, to their place of residence for resident record should be corrected.

An effort should be made to make use of such means as are available to check the completeness of birth and death reporting.

The city health department has not been getting the full benefit of the mechanical tabulating equipment it has available. A number of factors have no doubt been responsible, such as lack of well qualified supervision, failure of certain division heads to appreciate the possibilities of this method of tabulating, poor planning of work in some cases, and insufficient cooperation and coordination between divisions of the city health department. It hardly seems justifiable to have two primary divisions of the city health department doing statistical work as well as the lesser statistical activities being carried on in several other divisions. It would seem to be a better plan to have one general statistical division which could include vital statistics and morbidity as two of its activities. The registration of births and deaths could be continued as at present under the direction of a deputy registrar as a subdivision of a general statistical division and the tabulations of births and deaths could all be done from punch cards as a part of the work of the tabulating unit of such a general statistical division. The release of the clerical help from the manual tabulation of deaths would make it possible to devote more time to the checking of the completeness of birth and death reporting.

In the appraisal of the Los Angeles City Health Department according to the section entitled "Vital Statistics and Reports of the Appraisal Form for Local Health Work," a total of 46 points can be allowed out of a possible 89. The total possible score was 89 instead of 100 because of the elimination of certain items in the form for scoring which did not apply to Los Angeles. Although the Los Angeles City Health Department is credited with only 51.7 per cent of the total score it could attain if its vital statistics activities met the standards set by the appraisal form, the deficiencies could be corrected more easily than the total score would seem to indicate. Many of the points lost can be attributed to lack of planning and coordination, and of sufficient personnel to carry on anything but the most pressing essential activities. Reorganization of statistical activities into one division would make it possible to make better use of present personnel and existing equipment.

Population Characteristics

In considering the public health problems of a population group it is important to know as background information, some of its characteristics. It is a well known fact that certain causes of morbidity and mortality show a predilection for certain age, sex, and racial groups. The age distribution of a population group determines, to a large extent, the toll exacted by the forces of morbidity and mortality in

terms of sickness and death. Thus general mortality is greatest at the extremities of life—among the infants and the aged. Mortality from tuberculosis is greatest among the young adult and middle aged groups. Mortality from the so-called degenerative diseases—cancer, cardio-renal-vascular diseases, et cetera—occur most frequently in the older adult group.

To summarize the population characteristics of the city of Los Angeles, it may be said that at the time of the U. S. 1930 decennial census, the population of Los Angeles was predominantly white and middle aged, with the number of females exceeding the number of males. It is interesting to note that in spite of the preponderance of females of child-bearing age, there are low percentages of the population in the childhood age groups; this is unusually interpreted to portend a low birth rate. The only racial groups present in sufficient numbers to significantly affect the characteristics of the city as a whole are the Mexicans, and probably also the negroes.

It is generally accepted that in order for a racial group to materially affect the vital statistics of a community it must constitute at least 5 per cent of the total population. Using that arbitrary figure, the Mexican population of Los Angeles, estimated to constitute 7.8 per cent, is the only racial group which definitely warrants special consideration apart from the total population, in so far as vital statistics are concerned. However, the negro population estimated at 45,000 constitutes 3.1 per cent and, as a general rule, the negro race in the United States is found to present problems that differ in relative importance from those of the general population. Furthermore, both groups in these numbers warrant special consideration since both more or less are concentrated in definite parts of the city. In the administration of public health work in Los Angeles it would be necessary to take cognizance of the special health problems of these racial groups, particularly in those areas of the city where they are found concentrated in large numbers.

Crude Death Rates

The crude death rate is a measure of the decrease in numbers of a population group resulting from the various forces of mortality. The crude death rate is of limited value for comparing the mortality experience of different population groups because there are so many variable factors that enter into its determination. Among the most important of these factors are age, sex, and racial distribution.

In the following table are shown the crude death rates for the city of Los Angeles as compared with those for the United States and for the State of California, for the years 1934 to 1938:

Crude Death Rates for the United States, the State of California, and the City of Los Angeles—1934-1938

Area	Deaths Per 100,000 Population				
	1934	1935	1936	1937	1938
United States*-----	11.0	10.9	11.5	11.2	***
California* -----	11.5	12.1	12.6	13.0	***
City of Los Angeles**	11.2	11.8	12.8	12.7	11.7

* U. S. Census Bureau figures.

** Computed from figures obtained from Los Angeles City Health Department.

*** Not available.

It is readily seen that the crude death rates for Los Angeles compare quite favorably with those of the state as a whole, and the nation, for the years shown. Furthermore, it should be pointed out that the rates shown in the above table include all the deaths occurring within the city, whether the deceased were residents or nonresidents; that this is an important consideration is shown in the following figures obtained from the city health department:

	1936	1937
Total deaths registered in Los Angeles City-----	17,759	17,933
Nonresident deaths in Los Angeles City-----	3,463	3,899
Total deaths of residents occurring in Los Angeles City -----	14,296	14,034

Of all the deaths occurring within the city of Los Angeles during 1936, 80.5 per cent only were residents of the city. In 1937, 78.2 per cent of all deaths occurring in the city were residents.

These figures do not take into account, however, those residents of the city of Los Angeles who died outside the city during the years 1936 and 1937. The U. S. Census Bureau has made complete allocations of deaths to place of residence for 1936 and partial allocations for 1937. (The 1937 figures do not include Los Angeles residents dying outside California; there were 167 such deaths included in the figures for 1936.) The number of deaths of Los Angeles residents occurring outside the city as shown by these allocations, is as follows:

1936	1937
2,036	1,828+

However, adding these deaths of Los Angeles residents to those resident deaths occurring in the city, the total deaths of residents, for these two years, are as follows:

1936	1937
16,332	15,862+

During these two years, the above total deaths of residents represent 92.0 per cent and 88.4 per cent, respectively, of the total number of deaths registered with the Los Angeles City Health Department.

The adjusted resident crude death rates, as compared with the registered crude death rate, for these two years, accordingly are as follows:

	1936	1937
Registered death rate-----	12.8	12.7
Resident death rate-----	11.8	11.2

The registered death rates for the important color and racial groups in Los Angeles, for the fiscal year ended June 30, 1938, are as follows:

	Total	White	Negro	Mexican
Death rates -----	11.7	11.8	15.2	11.3

It is somewhat surprising to find the general registered death rate among Mexicans in the city of Los Angeles to be lower than that of the white population, in spite of the fact that the Mexican population suffers excessive mortality from certain causes, such as tuberculosis, and in certain age groups, such as infants under one year of age; this might be due to the inclusion of nonresident deaths (the larger part of which

may be assumed to be white) in the total registered deaths, which would also increase the white registered death rates.

It may be said that there are about a tenth more deaths registered as occurring in the city of Los Angeles than there are deaths of Los Angeles residents, irrespective of place of death. This situation would affect to a considerable degree the local public health significance of all local death rate computations.

Birth Rate

The natural growth of a population group as determined by the rate additions are made in the form of births and the rate subtractions occur as a result of death. In the table below is shown the birth rates for the city of Los Angeles for the past five years, as compared to those for the United States and the State of California, as a whole.

**Birth Rates for the United States, California, and the City of Los Angeles—
1934-1938**

Area	Births Per 1,000 Estimated Population				
	1934	1935	1936	1937	1938
United States * -----	17.1	16.9	16.7	17.0	***
California * -----	13.2	13.4	13.9	15.3	***
City of Los Angeles **-----	12.9	12.4	12.6	13.7	14.3

* U. S. Census Bureau figures.

** Computed from figures obtained from Los Angeles City Health Department.

*** Not available.

The birth rates for Los Angeles are consistently below those for the state or the nation during this five-year period. It is interesting to note, however, that the birth rate has shown a definite increase in Los Angeles during this period. However, it should be pointed out that the births represented by the rates for the city of Los Angeles shown in the above table are those registered as occurring within the city, whether the mother is a resident of the city or not; thus the Los Angeles County Hospital which serves the whole county is located within the city, and all births occurring in this institution are credited to the city of Los Angeles. Similarly, births occurring to nonresident mothers in other hospitals in the city are credited to the city. The following figures, obtained from the Los Angeles City Health Department, show the number of nonresident births occurring in the city of Los Angeles during the calendar years 1936 and 1937:

	1936	1937
Nonresident births -----	3,848	4,191
Births of residents-----	13,692	15,102
Total registered births-----	17,540	19,293

In each of these two years the resident births were only 78 per cent of the total births occurring in the city of Los Angeles.

These figures, moreover, do not take into account the births of residents of Los Angeles occurring outside the city. The U. S. Census Bureau has made complete allocations of births to place of residence for 1936 and partial allocations for 1937—the 1937 figures do not include births of residents of the city of Los Angeles occurring outside

of the State of California; these tabulations show the births of residents of the city of Los Angeles occurring outside the city to be:

1936	1937
3,246	3,666+

Adding these births to the resident births occurring in the city, the total births of residents for these two years are as follows:

	1936	1937
Total births of Los Angeles residents (wherever born) -----	16,938	18,768+

For these two years the total births of residents of the city of Los Angeles, wherever born, are equal to 96.6 per cent and 96.8 per cent, respectively, of the total births registered with the city health department. Thus it is evident that there are almost as many Los Angeles resident births occurring outside the city as there are nonresident births occurring within the city. The resident birth rate is only a little less than the registered birth rate, as the following figures demonstrate:

	1936	1937
Registered birth rate for Los Angeles -----	12.6	13.7
Resident birth rate for Los Angeles -----	12.2	13.3

The birth rates for the important color or racial groups in Los Angeles for the fiscal year ended June 30, 1938, are as follows:

	Total	White	Negro	Mexican
Birth rate -----	14.2	12.6	19.6	28.8

Thus it is apparent that the Mexican population has a birth rate over twice as great as the general white population of the city, while the negro birth rate is over half again as great as that of the white population.

Principal Causes of Death in Los Angeles

It is interesting and instructive to determine what causes of death are numerically most important as forces of mortality reacting on a population group. In the following table are shown the ten numerically most important causes of death in the city of Los Angeles, and the percentage of all deaths resulting from each cause. The relative ranking of these causes of death in the State of California as a whole, and the nation, is also shown for purposes of comparison.

Number of Deaths from Principal Causes, and Percentage of All Deaths Resulting from These Causes, in the City of Los Angeles, With Relative Ranking of These Principal Causes in the United States and California, 1937

International List Number	Cause of Death	Deaths in Los Angeles *		Relative Ranking For:		
		Number	Per Cent of Total	L. A.	United States **	California **
90- 95	All causes -----	16,673	100.0	---	---	---
45- 53	Diseases of the heart-----	4,369	26.1	(1)	(1)	(1)
	Cancer and other malignant tumors -----	2,239	13.4	(2)	(2)	(2)
130-132	Nephritis -----	1,126	6.8	(3)	(5)	(5)
82	Cerebral hemorrhage, cerebral embolism, and thrombosis--	1,105	6.8	(4)	(3)	(4)
107-109	Pneumonia (all forms)-----	895	5.4	(5)	(4)	(3)
23- 32	Tuberculosis (all forms)-----	860	5.2	(6)	(6)	(6)
176-195						
201-205						
207, 209						
212-214						
	Other accidents*** -----	605	3.6	(7)	(7)	(7)
210	Automobile accidents-----	551	3.3	(8)	(9)	(8)
97, 102	Arteriosclerosis (except coronary), idiopathic anomalies of blood pressure-----	484	2.9	(9)	---	(10)
163-171	Suicide -----	408	2.4	(10)	---	(9)
11	Influenza -----	---	---	---	(8)	---
59	Diabetes mellitus -----	---	---	---	(10)	---

* Los Angeles figures from city health department and cover the fiscal year ending June 30, 1938.

** Figures for the United States and the state of California are from Census Bureau publications and cover the calendar year 1937.

*** Exclusive of motor vehicle accidents (206, 208, 210, 211).

There are several important points made evident by a study of this table. In the first place, the ten causes of death listed in the table accounted for 75.7 per cent of all the deaths occurring in the city of Los Angeles during the Fiscal year ending June 30, 1938. At first thought, it might seem that a health department would do well to concentrate its efforts toward preventing these numerically most important causes of death if it is to accomplish most in the saving of human life. It must be remembered, however, that death is the inevitable fate of human beings and therefore there will always be leading causes of death. Lives saved from one cause must eventually be lost to another. The objective of a health department is to prevent untimely death from any and all causes so that all persons may enjoy a normal life span in a state of healthfulness.

There are several important differences in the relative ranking of the principal causes of death for the city of Los Angeles as compared with the state as a whole, and with the nation. Pneumonia ranks fifth as a cause of death in Los Angeles, whereas it ranks third as a cause of death for the state as a whole, and fourth for the nation; Los Angeles residents would, no doubt attribute this fact and possibly rightly so, to their famed climate. Although Los Angeles enjoys an advantageous position in so far as the relative importance of this cause of death is concerned, the fact that over 5 per cent of all deaths result from this cause is evidence that there is still much to be accomplished in the saving of life from pneumonia.

Automobile accidents rank seventh as a cause of death for Los Angeles, as compared to eight for the State of California as a whole,

and ninth for the nation. Los Angeles being a large urban center, it is to be expected that automobile accidents would account for a larger proportion of all deaths here than they do for the state and nation. Since a health department is dedicated to the task of preserving the health and life of the people it serves, it must interest itself in all preventable causes of morbidity and mortality whether the remedial procedure is a function of the department or not. The collection, recording, and analysis of pertinent data relative to the persons and circumstances involved in automobile accidents would be of great assistance to those agencies responsible for preventing their occurrence.

Arteriosclerosis and idiopathic anomalies of the blood pressure rank ninth as a cause of death in Los Angeles and tenth in the state, but they do not rank among the ten principal causes of death for the nation. This fact is probably attributable to the fact that Los Angeles and the State of California both have higher percentages of their total population in the older age groups among whom these causes of death occur most frequently.

Suicide also ranks among the ten principal causes of death for Los Angeles and California but does not appear among the ten principal causes for the nation. California for many years has been "the promised land" for victims of maladjustment from all parts of the country; this may account for the excessive number of suicides in the state.

Among the ten principal causes of death for the city of Los Angeles, malignancy and diseases involving the heart, kidneys, and blood vessels accounted for 55.8 per cent of all deaths. The bulk of these fall into the so-called group of degenerative diseases. The principal hope of accomplishment in the application of present public health methods to these diseases is to postpone their occurrence to the end of a normal life span. This involves public health education to acquaint the public with the value of periodic physical examinations by their private physicians; the need for seeking medical advice for any suggestive early symptoms; and the dissemination of the latest scientific information as to proper health habits for the prevention of these diseases. It may also involve the provision of clinical and laboratory diagnostic service for the assistance of private physicians in certain instances.

Tuberculosis and pneumonia together accounted for 10.6 per cent of all deaths in Los Angeles during the fiscal year 1937-1938. Public health has more specific methods to offer in preventing death from these causes. Much has been done in past years to reduce the importance of tuberculosis as a cause of death, but still greater accomplishments can be anticipated with the extension and perfection of present public health methods applicable to this disease. The potentialities of a public health attack on pneumonia has become apparent in recent years through the discovery of effective therapeutic agents for this disease. Application through public health methods of the scientific knowledge now at hand will result in the saving of many human lives now being lost from pneumonia.

Infant Mortality

The infant mortality rate is generally considered one of the most sensitive indices of a community's health status. It is one of the

most accurate rates we have since it represents the number of deaths of infants under one year of age per 1,000 live births; both of these two factors can be determined currently with a fair degree of accuracy.

In the following table is shown the infant mortality rates for the city of Los Angeles for the past five years in comparison with those for the State of California as a whole, and the United States:

Infant Mortality for Los Angeles, California, and the United States—
1934-1938

Area	Infant Deaths Per 1,000 Live Births				
	1934	1935	1936	1937	1938
United States* -----	60.1	55.7	57.1	54.4	***
California* -----	51.7	49.6	53.1	53.8	***
Los Angeles** -----	52.7	52.0	56.5	52.4	43.5

* U. S. Census Bureau figures.

** Computed from figures obtained from the city health department.

*** Not available.

It is readily observed that the infant mortality rates for the city of Los Angeles compare quite favorably with those for both the State of California as a whole, and the nation for the five-year period. In 1938 the infant mortality rate for Los Angeles showed a marked improvement. Whether this is a chance fluctuation or a permanent improvement will be only revealed in subsequent years.

It must be pointed out that both nonresident births and non-resident infant deaths are included in the computation of the infant mortality rates shown for Los Angeles in this table. If the infant mortality rates are figured for residents only, by deducting nonresident infant deaths and nonresident births, the resident infant mortality rates for the last three years (the only years for which nonresident births and nonresident infant deaths have been tabulated) are as follows:

1936	1937	1938
49.5	45.2	38.0

It is shown elsewhere in this report that there are almost as many births of Los Angeles residents occurring outside the city as there are nonresident births occurring within the city. During the years 1936 and 1937 between 19 and 20 per cent of all births of Los Angeles residents occurred outside the city. Whether the infant mortality experience of the entire group of resident infants, wherever born and wherever dying, is the same as that for resident births and resident infant deaths occurring within the city is not known; but, if it should be true, then the city of Los Angeles occupies a favorable position in so far as infant mortality is concerned.

Infant and neonatal mortality rates were computed for the principal color and racial groups of Los Angeles for the fiscal year ended June 30, 1938. These rates are as follows:

	Total	White	Negro	Mexican
Infant mortality rates-----	47.3	40.1	48.5	86.2
Neonatal mortality rates*-----	28.8	27.7	33.5	34.7

* Deaths of infants under 1 month per 1,000 live births.

There are several interesting points made evident by an examination of these figures. In the first place, the negro and Mexican groups have higher infant mortality rates than the white population—the

Mexican infant mortality rate being more than double that of the white group. In the second place, while about 40 per cent of the Mexican infant deaths occur during the first month of life, almost 70 per cent of the white and negro infant deaths occur during the neonatal period. The reason for this apparent difference in the relative frequency with which infant deaths occur during the neonatal period in the various color and racial groups should be thoroughly investigated. It would seem that there is a difference in the infant hygiene needs of the various racial and color groups.

The infant and neonatal mortality rates presented for the various racial and color groups include both resident and nonresident births and infant deaths occurring in Los Angeles. The absolute value of the rates given is, therefore, open to some question. Unfortunately, data are not available to make it possible to include resident births and resident infant deaths for the various racial groups occurring outside the city. If only resident births and resident infant deaths occurring within the city are used, however, the infant and neonatal mortality rates for the various racial and color groups for the fiscal year 1937-1938 are as follows:

	Total	White	Negro	Mexican
Infant mortality rates-----	39.2	34.0	48.3	63.8
Neonatal mortality rates-----	24.8	24.7	33.0	24.2

These figures bear out the general statements already made regarding infant and neonatal mortality among the various racial and color groups in the city of Los Angeles. In fact, here we find the neonatal rate for the Mexican group actually less than that of the other racial and color groups, while the infant mortality rate is considerably greater.

During the fiscal year ended June 30, 1938, 81 per cent of all the births in the city of Los Angeles occurred in hospitals. Among the white births, 89 per cent occurred in hospitals, while 59 per cent of the negro births and 55 per cent of the Mexican births were in hospitals. Midwives delivered 2.4 per cent of all births in the city of Los Angeles during the year. The greatest number of these were among the Mexican population, 7.7 per cent of all Mexican births occurring under the supervision of midwives.

Maternal Mortality

Excessive maternal mortality in this country has been a cause of considerable concern to the public health and medical professions for a number of years. It is undoubtedly true that many deaths from maternal causes could be prevented if every pregnant woman were to receive adequate prenatal, delivery, and postnatal care.

In the following table is shown the maternal mortality rates for the city of Los Angeles as compared with those for the United States, and the state of California as a whole for the five-year period, 1933-1937.

Maternal Mortality Rates* for the United States, California, and the City of Los Angeles—1933 to 1937

Area	1933	1934	1935	1936	1937
Registration area -----	6.2	5.9	5.8	5.7	4.9
California -----	4.6	4.3	4.5	4.7	4.1
Los Angeles City-----	6.4	5.1	6.2	5.8	4.5

* Maternal deaths per 1,000 live births. Figures from U. S. Census Bureau's Special Vital Statistics Reports.

It is easily observed that the maternal mortality rates for Los Angeles compare quite favorably with those for the United States, although they consistently exceed those of the State of California as a whole. It should be remembered, however, that nonresident maternal deaths and nonresident births are included in the computation of these maternal mortality rates for the city of Los Angeles.

During the fiscal year ended June 30, 1938, there were 56 deaths of residents of the city of Los Angeles from puerperal causes that occurred within the city, and there were 15,642 births of residents that occurred in the city during the same year. Using these figures, the maternal mortality rates for resident women who were in Los Angeles at the time of their delivery was 3.6 for the year. During this same period the maternal mortality for all puerperal deaths (resident and non-resident) occurring within the city was 3.9.

It would appear from this that the maternal mortality rates shown for the city of Los Angeles in the accompanying table are slightly greater than they would actually be if only resident births and maternal deaths, wherever they might occur, were used in the computation. As is shown elsewhere in this report, however, there are almost as many resident births occurring outside the city as there are nonresident births within the city. The maternal mortality experience of this group is unknown and the effect of their inclusion in the determination of a true resident maternal mortality rate can not be determined from available data.

Maternal mortality rates have been computed for the various racial and color groups of the population of Los Angeles for the year ended June 30, 1938, as follows:

	Total	White	Negro	Mexican
Maternal mortality rates-----	3.9	3.4	8.1	5.6

The negro group suffers the greatest maternal mortality rate, it being over twice as great as that for the white group. The Mexican maternal mortality rate occupies an intermediate position. This relationship is interesting as compared to the infant mortality rates for the various color and racial groups. Infant mortality is excessive in the Mexican group, but maternal mortality is excessive in the negro group. An exhaustive study of the underlying factors that are accountable for these relationships should be most helpful in carrying out of an effective infant and maternal hygiene program.

General Statistics Division

This division, up until 1936, was primarily concerned with departmental "printing" and the drafting of posters and graphs, its two major functions. A director, who supervised both activities, was in charge until the spring of 1939 when he took a leave-of-absence from the department and there seems to be some doubt as to whether he will return. The director has good general mathematical background but lacks specific training in biostatistics; he has been with the department for four and one-half years in charge of printing. In 1936 when the city health department installed Hollerith punching and sorting equipment and added a trained operator to the personnel, the general statistics division was reorganized to include both departmental print-

ing and general statistics as its primary function. The following table gives the personnel set-up of the division:

Title	Civil Service	Status	Annual Salary
Director -----	Yes	Full-time	\$1,980
Clerk—correspondence -----	Yes	Vacancy	-----
Clerk—general -----	Yes	Full-time	1,680
Junior stenographer -----	Yes	Half-time	1,500
Tabulating machine operator -----	Yes	Full-time	1,500

In the current continued absence of the director of this division there has been no general supervision of the printing and statistical work. Each has operated more or less autonomously and so each will be discussed independently in the following paragraphs. However, it will be impracticable to discuss in detail the work done in the general statistical division but certain particularly pertinent phases of this work are discussed herein and comments and recommendations made elsewhere in this report on the use of the mechanical tabulating equipment.

General Statistics Work

There is one punching machine and tabulating machine operator who constitutes the entire staff doing the general statistical work of the division. This operator came to the city health department three years ago to operate the Hollerith equipment that was installed at that time. He had had a course in tabulating machine operation and a short period of practical experience prior to that time. The city health department is fortunate to have some mechanical tabulating equipment available; the Hollerith equipment now being used in the general statistics work consists of: a key punch, a verifier, a counting sorter, and a printing tabulator with six controls. A request has been made for a printing tabulator with sixteen controls so that more extensive tabulating work can be done.

This unit was established to provide general statistical tabulation service to all of the divisions of the city health department having need for such. In the following table are shown the various divisions of the health department now being routinely served, the nature of the statistical work being done for each, and the number of cards punched for each during the fiscal year 1937-1938:

	Cards Punched
Nursing Division:	
Distribution of nurses' time -----	18,500
Distribution of nursing service -----	18,000
Vital Statistics Division:	
Deaths -----	17,139
Births -----	20,659
Child Hygiene Division:	
Infant mortality (special study) -----	1,000
Diphtheria immunizations (3 years) -----	75,000
Accounting office:	
Pay roll -----	7,200
Mileage -----	2,000
Carfare -----	1,300
Total cards punched -----	160,998

In addition to this routine work, summary cards are now being punched for each child hygiene conference conducted by the child hygiene division. Special statistical studies are made from time to time when requested by the various divisions.

Printing Unit

As stated before, the "printing" unit theoretically constitutes one of the branches under the director of the general statistics division, but at the present time it is operating practically as a separate autonomous unit. Actual printing processes are not accomplished and the printing equipment consists of multigraphing and duplicating machines, drafting tables, poster easels, etc. Notwithstanding the city government maintains a complete printing plant, the reports of the city health department are gotten out by its own printing unit, together with much publicity and educational material, forms, et cetera. Most of the other departments of the city government get out a well printed and illustrated annual report. Printing accomplished in the city printing plant is a charge against the appropriation of the department for whom the printing is done. It is reported that the cost is considerably less than for commercial printing; even so, the city health department apparently elects to get out its own report with its own inferior equipment as a matter of economy, or to justify the maintenance of the printing unit.

The regular staff of the "printing" unit consists of a supervisor of printing work, and a stenographer. In addition a WPA worker has been assigned to work in the division for the last few months in connection with a venereal disease educational project. The director has been with the health department for four-and-a-half years and in his present position for the past three years. A full-time stenographer has been assigned to the printing unit for the past three years.

The printing unit is quartered in a small room on the mezzanine floor of the city health department building; the equipment consists of an eleven year old rotary printing duplicator, a stencil duplicator, and an addressograph that is little used. In the basement is another room which is used for drafting the education charts, graphs and posters.

The printing unit does all the "printing" work for the entire health department that can be done on the available equipment, which is limited both as to versatility and capacity. This includes educational pamphlets, record forms, reports, mimeographed portions of the annual report, etc. In addition to this work the director makes up educational charts, graphs and posters for various divisions of the health department.

The production of the printing unit for the fiscal year ended June 30, 1938, was as follows:

	Pages
Multigraph -----	1,019,408
Mimeograph -----	324,934
Total -----	1,344,342

General Statistics Unit

A thorough knowledge of the vital statistics of the population group served is essential to the efficient and effective administration

of a health department. No less important is a thorough knowledge of how the financial resources of the health department are being expended and how the activities of the various personnel are being distributed in terms of types of service, quality and quantity of service, et cetera. Much of this analysis of activities of the department and their cost must be made statistically. The details of the work being done with the mechanical tabulating equipment has been described in other sections of this report; the services of this unit are now being used by the division of vital statistics, the nursing division, the child hygiene division, and the accounting office.

Many other divisions of the health department could make valuable use of this equipment if persons in charge were aware of the potentialities of this method of handling mass data and if there were a person in charge of the general statistical work who has sufficient statistical and public health training to know what assistance the unit could offer the various divisions of the health department and sufficient personnel were available to do the work. For instance, the statistical analysis of morbidity reports should be very helpful in the direction of activities for the control of the acute communicable diseases, tuberculosis, syphilis, et cetera. Analysis of venereal disease clinic data should be of great assistance in determining how efficiently these treatment facilities are serving their purpose. A more complete and useful tabulation of births and deaths could be made if all this work were done with mechanical tabulating equipment. Once statistical information has been placed on punch cards, these records may be used at any future time for additional analyses in great variety. Space does not permit mentioning more than these few improved and additional services that the tabulating unit could provide. Under proper supervision, the possible usefulness of this equipment would only be limited by its capacity and the working limits of the available operating personnel.

Some of the work now being done by the mechanical tabulating unit is a duplication of manual tabulations done in other divisions, and certain other analyses are of questionable value as permanent projects. It has already been pointed out that tabulations of deaths are made both in the general statistics division and the vital statistics division, much of which is a duplication of work. The nursing division has been having a tabulation made of the distribution of nursing time for various types of activities. Each nurse submits a daily detailed report from which the time distribution data is punched, and the punch cards are used to make the analysis of nursing time distribution. Such a project is very valuable as a limited "spot" study from time to time but it would be difficult to justify the amount of time spent by the nurses in keeping the necessary records, the time of the machine operator in tabulating the information, and the cost in salaries, supplies and rental of equipment for the continuous analysis of these data. It should be the responsibility and prerogative of a trained person in charge of an actual and inclusive general statistical division to determine the nature and extent of the work to be done by the statistical unit on the basis of usefulness, appropriateness and justification. Only in that way can the city health department profit to

the maximum by the use of such extremely helpful but rather expensive mechanical tabulating equipment.

Recommendations

The following recommendations are made for the carrying on of statistical work in the Los Angeles City Health Department.

1. A more comprehensive division of general statistics should be organized in the city health department to provide statistical service to, and concentrate the statistical work of, all divisions in the department. Included among its activities should be all tabulations of births, deaths, and morbidity reports of the reportable diseases. The general statistics division need not be a primary division of the health department and might very properly be placed under a division of preventable diseases.

2. A well trained and experienced biostatistician, thoroughly familiar with the use of mechanical tabulating methods, and capable of setting up statistical projects for all types of health department activities should be placed in charge of the general statistics division.

3. Registration of births and deaths should be continued, as at present, under the general supervision of the deputy registrar as a subdivision of the general statistical division; the director of the division of general statistics should not be appointed deputy registrar, but the deputy registrar should be under the administrative supervision of the director.

4. All tabulations of birth, deaths, and morbidity from the reportable diseases, should be done in the tabulating unit of the general statistical division.

5. The checking of death reports against morbidity reports, and infant deaths against birth reports should be done in the general statistical division. Methods should be developed for the continuous checking of the completeness of birth and death reporting.

6. Information needed by other divisions of the health department, such as a list of births as they are reported for the use of the nursing division, tuberculosis deaths for the tuberculosis division, continuous morbidity for principal contagious diseases, venereal disease tabulations for the division of venereal diseases, maternal and infant (and neonatal) deaths, and deliveries to the child hygiene division, et cetera should all be supplied regularly from the general statistical division.

CONTROL OF ACUTE COMMUNICABLE DISEASES

By P. A. SURGEON J. E. DUNN, U. S. Public Health Service

In this section of the report will be discussed the methods used in the city of Los Angeles for the control of the acute communicable diseases. This is largely a function of the quarantine and morbidity division of the city health department; however, a number of other divisions of the city health department, and also independent agencies, take a part in these control activities; thus the nursing division makes home visits to certain cases of acute communicable disease; the laboratory division examines specimens from cases of acute communicable disease; the epidemiologists furnish diagnostic consultation service; while tuberculosis and the venereal diseases are specific activities of those divisions.

Among the other agencies participating in the control of the acute communicable diseases in Los Angeles, is the Los Angeles County Hospital which has the only isolation facilities in the city for the hospitalization of acute communicable disease cases and hospitalizes city cases for the city health department; under state law, the health department of any incorporated city is responsible for providing hospitalization for the isolation and care of contagious disease cases occurring in that city.

In addition, certain other agencies in the city of Los Angeles, notably the nurses of the health service section of the public school system, are participating in the control of communicable diseases; they exclude children from school who are suspected of having an acute communicable disease and examine the children in school rooms from which a communicable disease case has been excluded for other possible cases and visit homes of all public school children; these activities will be further discussed separately.

In order that the integration and overlapping of these activities with those of the city health department may be understood in the following specific discussions of the several communicable diseases, mention should be made here regarding the procedure for controlling the acute communicable diseases in the public schools. The city health department sends lists of all acute communicable disease cases reported to it to the health service section of the public school system; the names of all child contacts are also reported. The school nurses then check the children in the school rooms which these cases normally attend, and also the school rooms of contacts, for the purpose of excluding any other possible cases. Furthermore, whenever a school child is absent for three days or more for any reason a visit is made to the child's home by either a school nurse or truant officer to determine the reason for absence; if illness is suspected, known or found to be the cause of absence, the visit is made by the school nurse. If a suspected communicable disease is found in a child who is a resident of the city, the city health department is notified. Reports of some of the nonquarantinable diseases, such as measles, by school nurses are sometimes accepted by the city health department without further investigation.

There is no clear cut policy or cooperative agreement between the nursing division of the city health department and the school nursing service as to making complete home visits in cases of acute communicable disease which undoubtedly results frequently in duplication of visits. The school nurse visits the home of all public school cases but ordinarily the school nurse's visit is made primarily to determine the cause of absence from school and to inquire as to additional child contacts in school, rather than in the interest of the proper home care of the patient. It would seem that some arrangement should be made whereby the family would in the same nursing visit also receive the earliest possible instruction in isolation technique, care of the patient, et cetera, which at present is not usually received until some time later from the health department nurse; this would also obviate possible duplication of visits and wasting of nurses' time.

No school child in the city of Los Angeles who has had a quarantinable disease can be readmitted to school without a readmission card from a physician of the city health department. Children who have had a nonquarantinable disease may be readmitted after examination and approval by a private physician, a school nurse or school physician, or a health department physician.

The provisions for offering smallpox vaccination and diphtheria immunization to school children will be discussed under these particular diseases.

Epidemiology

The staff of the division of epidemiology in the city health department consists of the assistant health officer and epidemiologist and his assistant. The assistant health officer and epidemiologist has been with the health department for over twenty years; he is a physician (M.D.) and will reach the charter age limit for active service in about one year. The position carries a salary of \$4,800 per annum. The epidemiologist enjoys an excellent reputation in the diagnosis of acute communicable diseases. He has had no formal special training in public health and is disinclined to assume administrative details and responsibilities, preferring to confine his activities to those described.

The assistant epidemiologist has been with the department for a little less than two years; he is a physician and is one of the two members of the entire staff of the city health department who has a certificate in public health. The position of assistant epidemiologist carries a salary of \$3,600 per annum. The assistant health officer and epidemiologist exercises some coordinating supervision over the activities of the quarantine and morbidity division, although this division is under the direct administrative charge of the chief deputy health officer.

The work of the division of epidemiology can be briefly summarized as follows:

- (1) Diagnostic consultation service to the physicians of the quarantine and morbidity division when requested. The epidemiologists represent the "court of last appeal" in so far as establishing diagnoses of communicable diseases is concerned. Private physicians frequently call the epidemiologists directly for diagnostic consultation service.

- (2) Since the Los Angeles County Hospital is located within the city of Los Angeles, the city health department assumes responsibility for the enforcement of all regulations for the control of communicable

diseases for patients hospitalized in its communicable disease unit—whether the patient resides in the city or elsewhere in the county. It has been the practice for many years for the epidemiologist of the city health department to see personally every case of quarantinable disease admitted to the hospital, for the purpose of confirming or establishing a diagnosis; the history and clinical record is reviewed and oftentimes an examination made, of every patient admitted to the communicable disease unit of the county hospital to confirm or finally determine the official diagnosis. This work was turned over to the assistant epidemiologist at the time he joined the health department staff and requires three full days a week of his time.

The assistant epidemiologist makes some limited epidemiological studies from time to time, when an unusual outbreak of a communicable disease occurs and when the demands on his time by his other regular assigned activities will permit. The routine epidemiological investigations made by the city health department of the important communicable diseases is not under the supervision of, or a responsibility of, the epidemiological division, but is conducted principally by lay inspectors of the quarantine and morbidity division.

In the following paragraphs the activities for the control of the acute communicable diseases will be discussed in the manner and order they are presented in the Appraisal Form for Local Health Work of the American Public Health Association.

Incidence and Reporting

It is not entirely satisfactory to measure adequacy of morbidity reporting by the case fatality rate. In the absence of adequate data, however, this is the one that, perforce, generally must be used and such is the case in Los Angeles.

According to the appraisal form, the proportion of average case reports to average deaths from certain diseases over a five-year period in a community in which average reporting obtains, should be as follows:

Typhoid and paratyphoid fever	8 cases per death
Measles	150 cases per death
Scarlet fever	150 cases per death
Whooping cough	50 cases per death
Diphtheria	13 cases per death

In the following table is shown the number of cases and deaths occurring in Los Angeles from these diseases during the past five years. The number of deaths shown for these communicable diseases includes only deaths of residents registered with the Los Angeles City Health Department. It is believed that these figures will represent fairly accurately the total deaths of residents from each of these diseases because there are no facilities for the hospitalization of acute communicable disease cases in Los Angeles County other than at the Los Angeles County Hospital, which is located within the city of Los Angeles. The number of cases shown for each of the diseases also represents only city residents because the city and the county health departments exchange nonresident morbidity reports in order that cases may be charged to the proper health department's jurisdiction.

**Cases and Deaths from the Indicated Communicable Diseases During the
Fiscal Years Ending June 30, 1934 to 1938**

Diseases	Cases or Deaths	1934	1935	1936	1937	1938	Average
Typhoid and paratyphoid	Cases	76	41	67	48	50	56.4
fever-----	Deaths	7	7	9	7	3	6.6
Measles-----	Cases	1,361	1,360	9,164	909	951	2,749.0
	Deaths	3	3	32	2	0	8.0
Scarlet fever-----	Cases	2,352	2,108	2,335	1,308	1,568	1,934.2
	Deaths	21	10	13	4	4	10.4
Whooping cough-----	Cases	2,740	666	1,274	3,434	1,749	1,972.6
	Deaths	35	10	13	33	27	23.6
Diphtheria-----	Cases	913	739	515	537	443	629.4
	Deaths	32	28	23	29	16	25.6

The average number of cases per death for each of these diseases during the five-year period covered in the above table is as follows:

Diseases	Actual Reporting	A.P.H.A. Standard
Typhoid and paratyphoid fever	8.5 cases per death	8 cases per death
Measles-----	343.6 cases per death	150 cases per death
Scarlet fever-----	186.0 cases per death	150 cases per death
Whooping cough-----	83.6 cases per death	50 cases per death
Diphtheria-----	24.6 cases per death	13 cases per death

Comparing these figures with the appraisal form standards for adequate reporting of these diseases, it is readily seen that the reporting of these diseases in the city of Los Angeles is equal to, and in all but one instance far excels, the appraisal form standards.

In the appraisal of "Disease Incidence and Reporting" according to the Appraisal Form for Local Health Work, the Los Angeles City Health Department was allowed credit for the full score of five points for this activity.

Case Investigating and Recording

The procedures for handling the quarantinable, and the nonquarantinable, reportable diseases by the physicians and the quarantine officers of the quarantine and morbidity division of the city health department has been described elsewhere in this report. In general, it may be said that the principal objectives of the city health department in the control of the acute communicable diseases is the establishment of diagnoses and the enforcement of quarantine regulations.

Routine epidemiological investigations are not ordinarily made of the important acute communicable diseases by the epidemiologist, with the possible exception of typhoid fever. Typhoid fever is the only disease for which the city health department has a printed form for uniformly gathering epidemiological data. These forms are usually filled out by a lay quarantine inspector and, as an inevitable result, more attention is given to completing the questionnaire within his comprehension than to the epidemiological significance of the information obtained which can not be reasonably expected to be properly comprehended by laymen.

The State Department of Public Health requires the filling out of case reports for certain diseases such as poliomyelitis, epidemic meningitis, tularemia, undulant fever, Rocky Mountain spotted fever, human

rabies, leprosy, et cetera. When a case of one of these diseases is under the care of a private physician, the city health department attempts to get him to fill out the state case report questionnaire; or if the patient was hospitalized, the form is filled out by a stenographer from the hospital case record. Although a copy of these state questionnaires is kept in the files of the city health department, the method in use of obtaining the information they contain is evidence that they in no sense represent complete epidemiological investigations. The fact that the city health department has no record of the discovery of a chronic typhoid carrier as a source of infection, in spite of the fact that the city has had an average annual crop of 57 cases of typhoid fever during the last ten years, would imply that the so-called epidemiological investigations of these cases as carried out have not been particularly fruitful.

The appraisal form standard requires that complete epidemiological studies, adequately made and recorded, should be made on at least 90 per cent of all the cases of typhoid fever, scarlet fever, diphtheria, and smallpox reported to the health department. A check of the records in the quarantine and morbidity division for the fiscal year ended June 30, 1938, revealed that smallpox was the only one of these diseases in which over 90 per cent of the reported cases were visited by a physician from this division; scarlet fever was next in rank in the percentage of cases visited by these physicians, with 53 per cent; only 12 per cent of the typhoid fever cases, and 9 per cent of the diphtheria cases, were seen by one of these physicians.

Furthermore, the epidemiological records made at the time of these visits contain little information of epidemiological value. While the epidemiologist of the city health department or his assistant, sees many of these cases in consultation, often at the request of private physicians or physicians attached to the quarantine and morbidity division, and they see all contagious disease cases hospitalized in the city, this apparently is done primarily for the purpose of establishing or confirming a diagnosis, and not for epidemiological case investigation.

Spot maps are not kept routinely for cases of typhoid fever, diphtheria, and smallpox. At the time of this survey a spot map was being kept of cases of scarlet fever reported since January 1, 1939, and a spot map for poliomyelitis reported during the current summer season had been begun. A spot map has been and is being kept of the location of proven rabid dogs.

A weekly report is compiled by the city health department from information obtained from the quarantine and morbidity division and the vital statistics division, showing the number of cases and deaths from each of the reportable diseases during the week. Comparative figures are also shown for the previous year. These reports are widely distributed to interested groups and individuals, such as hospitals, private physicians, et cetera.

The only annual tabulation made for the acute communicable diseases is one showing the total number of cases of each of the reportable diseases reported to the city health department during the twelve months' period. There is no breakdown of this tabulation for the various diseases by age, sex, and color or race of the patients.

The regular tabulation of morbidity reports on the mechanical tabulating equipment has not been attempted except for a few special studies made of certain diseases.

In appraisal of "Case Investigation and Recording" in accordance with the standards of the appraisal form, the city health department can be allowed only a total of four points out of a possible score of fifteen. The only credit allowable is on the weekly tabulation of the number of cases of each of the reportable diseases. No credit is allowable for epidemiological investigations of typhoid fever, scarlet fever, diphtheria, and smallpox because there was no adequately recorded evidence that they had been made, except possibly in the case of typhoid fever; credit for epidemiological investigation of typhoid fever cases is not allowable because a lay quarantine officer is not technically qualified to conduct an epidemiological investigation which should be made by a physician, or at least a public health nurse, who is trained and experienced in epidemiological work. Failure to keep spot maps of the prevalent communicable diseases specified, and failure to make an annual tabulation of the cases of the various communicable diseases by age, sex, and race or color accounts for the loss of points in scoring.

Diphtheria Control

Diphtheria being a quarantinable disease, all reported cases are seen initially by either a physician or a lay quarantine officer from the quarantine and morbidity division. A physician makes the first visit to a reported case when a private physician has not been in attendance, or when the attending physician requests consultation. Quarantine officers are responsible for establishing and maintaining quarantine on known cases. Since a physician from the health department does not see those cases under the care of a private physician except when requested, it is not a routine practice for a diagnostician from the health department to examine contacts of these cases. When the lay quarantine officer makes the initial visit to a diphtheria case he takes throat cultures of contacts if he is of the opinion that the procedure is indicated. Throat cultures are then taken on all contacts at the time of release of the patient. All cases are required to have two negative cultures from the nose and throat before being released. In this connection, the surveyor of the public health laboratory of the city health department made the observation that the technique and diagnosis of positives was in need of better supervision.

The city health department does all the diphtheria immunization of school children in the public schools and also in some of the parochial schools located within the city limits. This service is under the direction and supervision of the child hygiene division of the health department although the actual immunization work is done in the schools by the physicians of the quarantine and morbidity division. The immunization programs in public schools are organized by nurses of the school health service section of the public schools but city health department nurses assist at the time the immunization clinics are held in the public schools if 50 or more immunizations are to be given during a clinic period; immunization is organized in parochial schools by nurses of the nursing division in cooperation with the child hygiene division.

In addition to the immunization of a few preschool children who attend the public school immunization clinics, the child hygiene division offers this protective measure in its child hygiene conferences held at 22 different points throughout the city. The child hygiene division keeps a record of all the immunizations done under its sponsorship. According to these records the city health department has evidence that 22.7 per cent of the preschool child population of Los Angeles has been immunized against diphtheria. Although many others have, no doubt, been immunized by their private physicians, the number is unknown and therefore can not be included; it is quite doubtful whether this number, if known, would be sufficient to bring the immunization of all preschool children up to the 60 per cent required by the standards of the appraisal form.

The health service section of the Los Angeles Public School System does not determine the diphtheria immunization status of the child population in the public schools, but from data available in the child hygiene division's records it would appear that between 40 and 50 per cent of the school children in Los Angeles are known to have had diphtheria immunization. Here again, the number immunized by private physicians may possibly be sufficient to bring the number immunized up to the minimum of 60 per cent required by the standards.

In the appraisal of diphtheria control activities according to the Appraisal Form for Local Health Work, a total of six points out of a possible score of fifteen can be allowed. Points lost were due to lack of recorded evidence that 60 per cent or more of the preschool and school population is immunized against diphtheria, and because cases of diphtheria and contacts are not routinely examined by a competent diagnostician of the health department at the time of initial epidemiological investigation, and at the time of release from quarantine.

Typhoid Fever Control

Some comment has already been made referable to the epidemiological investigation of typhoid fever cases. It was pointed out that the epidemiological data are frequently gathered by a lay quarantine officer and that the investigations consist primarily of filling in a questionnaire form. The epidemiologist, or his assistant, have not regularly engaged in these investigations.

Stool cultures are routinely taken on contacts of typhoid fever cases but urine specimens are not requested. Release of clinically recovered typhoid fever cases is dependent on two negative stool cultures taken at least one week apart, but negative urine cultures are not required. These specimens are examined in the health department's laboratory division.

The city health department had, at the time of this survey, three chronic typhoid carriers on record, all of whom were former cases that have continued to have positive stool cultures since clinical recovery from the disease. These typhoid carriers are required to sign an agreement with the health department to so conduct themselves that they will not be a hazard to those with whom they come in contact. The fact that the Los Angeles City Health Department has no record to date of a chronic typhoid bacillus carrier discovered primarily in

the epidemiological investigation of reported cases, suggests that improvements need to be made in the epidemiological methods used.

Typhoid fever vaccine, which is purchased commercially, is freely available in the laboratory division of the city health department. It is not the routine practice of the health department to immunize contacts of typhoid fever cases, or contacts of carriers. The only typhoid immunizations done by the health department are those given in the division of vaccinations and miscellaneous medical inspections.

In the appraisal of typhoid fever control methods according to the standards of the Appraisal Form for Local Health Work, a total of six points out of a possible score of nine can be allowed. Failure to obtain urine cultures of cases and contacts accounted for points lost.

Smallpox Control

There has been an average yearly incidence of 87 cases of this disease in the city of Los Angeles during the past five years. Smallpox is a constant threat to the people of Los Angeles which might at any time break out in a devastating epidemic such as this city has experienced before, if a large percentage of the population is not constantly kept immunized by vaccination. Vaccination against smallpox is offered in the public schools and most of the parochial schools in the city of Los Angeles by the quarantine and morbidity division of the city health department. The school nurses in the public schools, and the city health department nurses in the parochial schools organize vaccination clinics and the physicians of the quarantine and morbidity division do the vaccinations. Vaccination is also offered in child health conferences operated by the child hygiene division. The health service section of the public schools has no information on the percentage of the children in the schools located within the city limits that have been protected from smallpox by vaccination. Data obtained from the city health department would indicate that less than 50 per cent of the school child population has been taken care of in the vaccination clinics. An effort should be made to determine what the actual vaccination status of the school population is, and steps should be taken to bring it up to at least the standard of a minimum of 90 per cent.

Susceptible contacts of smallpox cases are held until successfully vaccinated, or for a minimum period of 21 days from last exposure. Smallpox vaccine is freely available in the city health department.

In the appraisal of smallpox control methods according to the standards in the Appraisal Form for Local Health Work, a total of three points out of a possible score of six can be allowed. Lack of evidence to show that at least 90 per cent of the school population is vaccinated accounted for the loss of points.

Scarlet Fever Control

The same statements made previously as to the general method of handling quarantinable disease cases also applies to scarlet fever. When a case is reported by a private physician and no request for consultation as to the diagnosis is made, a lay quarantine officer assumes charge of establishing quarantine and releasing the patient after recovery. The usual period of quarantine is 21 days, and if the lay quarantine officer is of the opinion that recovery is complete

and there are no complications at the end of that time, the patient is released; a physician from the health department is called to see a patient before release only if the lay quarantine officer finds some complication. Child contacts are held under quarantine for seven days.

Two points out of a possible score of three was allowed for scarlet fever control, in the scoring of this activity according to the standards of the appraisal form. The point disallowed was because it is not a routine practice for a competent diagnostician of the city health department to see all scarlet fever patients before they are released from isolation.

Pneumonia Service

Since January 1, 1938, the laboratory division has offered free typing service for pneumonia. Specific anti-sera, however, have not been made available for free distribution. In the appraisal of this service, one of the two possible points was deducted because serum has not been made available for distribution, although recent advances in the chemotherapy of this disease perhaps justifies hesitancy in embarking on an expensive program of serum distribution.

Laboratory Service

A complete discussion of the laboratory division of the city health department is presented elsewhere in this report. The appraisal of laboratory service presented here is related only to the type and quantity of service done as a part of the control measures for the acute communicable diseases. Suffice it to say here that the quantity and type of work done in the laboratory for the control of acute communicable diseases in Los Angeles satisfies the standards set down in the appraisal form. Although it is not a routine practice for the laboratory division to examine available dogs' heads for Negri bodies when a positive clinical diagnosis of human rabies is made by the director of the rabies control division, still this laboratory test is available whenever requested and full credit is allowed in scoring.

Full credit is given for the total score of fifteen points allowed for the laboratory service of the city health department in the control of the acute communicable diseases according to the standards in the appraisal form.

Home Supervision of Cases

The activities of the nursing division in the control of the acute communicable diseases in the city of Los Angeles is carried on independent of but loosely coordinated with, the activities of the quarantine and morbidity division. A nurse from the central office of the nursing division goes to the office of the quarantine and morbidity division each morning to get the names of all cases of reportable diseases that have been reported during the previous day. Only names of those communicable disease cases not reported to be under the care of a private physician are taken, as home nursing visits are limited to such persons. A home visit is made by a district field nurse to each one of such cases for instruction of the family as to proper isolation technique and care of the patient. Return visits are ordinarily made at the discretion of the nurse, although a definite policy has been established for certain diseases, such as: on the tenth day for measles;

monthly visits to whooping cough patients; return visits at one month, six months, and twelve months for poliomyelitis, et cetera; more frequent visits are made in the nurses' discretion when necessary.

The nurses of the nursing division work rather closely coordinating with the physicians of the quarantine and morbidity division in the communicable disease control activities since both are concerned with patients not being cared for by private physicians. They frequently call on each other for assistance in caring for these patients.

In the Appraisal Form for Local Health Work certain standards are enumerated as to the number of home nursing visits that should be made in the care of certain communicable diseases. Unfortunately, the nursing division of the city health department has no data as to the number of nursing visits made to specific communicable diseases, but only the total number of visits to all communicable diseases, including visits made to venereal disease patients. A total of 7,606 would need to have been made during the fiscal year ended June 30, 1938, to meet the standard number of visits per case required by the appraisal form for the supervision of the cases of typhoid fever, measles, scarlet fever, whooping cough, diphtheria, poliomyelitis, meningococcic meningitis, and ophthalmia neonatorum cared for in Los Angeles homes during that period. The health department's annual report for that fiscal year shows that 4,381 home visits to communicable disease patients were made by nurses, which includes venereal disease home visits as well as visits to other acute communicable diseases than those listed. It is probable, therefore, that the nursing division of the city health department is making approximately half as many home nursing visits to acute communicable disease patients as it should make if it were to meet the standards of the appraisal form. In the appraisal of home supervision of cases, therefore, seven points are allowed out of the possible score of fourteen points since anything less than the standard number of visits per case can be given only half credit.

Diagnostic Service

Diagnostic consultation service for the acute communicable diseases is readily available from the Los Angeles City Health Department to private physicians, or to any organization or individual reporting a case of suspected communicable disease. The fifteen physicians attached to the quarantine and morbidity division are available for consultations and diagnostic service as one of their major functions. The epidemiologist of the city health department, and his assistant, are available to the other physicians of the health department, or to private physicians, as the final authority in the diagnosis of the acute communicable diseases. The records of the city health department do not make it possible to determine the number of calls made by physicians of the quarantine and morbidity division and the epidemiologists for diagnostic consultations with private physicians. The fact that this service is so freely available, however, would seem to justify allowing the full credit of four points allotted to this service in the appraisal form.

Hospitalization Facilities

The only hospital facilities devoted exclusively to the care of acute communicable disease cases in Los Angeles are the two acute com-

municable disease units of the Los Angeles County Hospital. The main hospital communicable disease unit for doctors of medicine has beds available for 250 patients, while the osteopathic unit will accommodate 25 patients.

Since the Los Angeles County Hospital has the only hospital facilities for acute communicable disease cases in the city and county, it receives patients from the whole area. It is pointed out elsewhere in this report that the city health department assumes responsibility for the diagnosis, quarantine, and proper release of all patients admitted to the communicable disease units of the county hospital, presumably because of its location in the city. On the other hand, the county hospital provides isolation hospital facilities for cases of acute communicable disease arising in the city which, under the laws of California, is a responsibility of the health departments of incorporated cities.

During the fiscal year 1937-1938 the 250-bed communicable disease unit of the main hospital had an average daily census of 135.5 patients. During this period there was a total of 3,937 admissions to this unit of the hospital. The average period of hospitalization per patient was 12.6 days.

It is estimated by some authorities that the average community will need a minimum of 20 beds per 100,000 population for the hospitalization of cases of acute communicable disease; this of course, depends upon to what extent isolation quarantine of cases in the home is permitted and practiced. The 275 beds available in the communicable disease units of the Los Angeles County Hospital would not be entirely adequate for the needs of the city of Los Angeles exclusive of the county needs, according to this standard. Since the county hospital serves all the rest of the county, as well as the city of Los Angeles, the available beds represent only 60 per cent of the number that would be required to meet the minimum standard of one bed for each 100,000 population.

In spite of the fact that the county hospital falls considerably short according to accepted standards of having available as many beds for the care of acute communicable disease cases as is ordinarily considered necessary for a population group as large as that of Los Angeles city and county, the fact remains that the facilities are adequately meeting the needs made upon them at the present time. At no time during the fiscal year 1938 were more than 75 per cent of the beds occupied at any one time. This may mean that home care and quarantine isolation is practiced to a greater extent than is usually found in communities of comparable size. If adequate morbidity data were available for these acute communicable diseases and their prevalence was found to be comparable with that of other cities of similar size, then it could definitely be said that such was the case.

Community Health Instruction

An accurate record is not kept in the city health department of the number of educational pamphlets which are distributed to the general public, dealing with the important communicable diseases. The department "prints" leaflets dealing with measles, whooping cough, and diphtheria in its own "printing" unit of the general

statistics division and also distributes literature obtained from other sources dealing with the several acute communicable diseases. To meet the standards of the appraisal form, a total of 9,512 pamphlets dealing with typhoid fever, measles, whooping cough, scarlet fever or diphtheria would need to have been distributed during the fiscal year ended June 30, 1938, in order that full credit could be given for this educational method. Evidence is lacking to show that even half this number were distributed and so no score can be allowed for this activity.

Newspaper articles dealing with currently important acute communicable diseases are frequently released by the city health department. A regular clipping service is not maintained by the department but the health officer's clerical staff keeps scrap books of such newspaper releases as come to their attention. A review of those clippings gathered during the fiscal year ended June 30, 1938, resulted in the finding of articles for all but one of the six numerically most important acute communicable diseases. Credit for four of the possible score of five points, was allowed for newspaper publicity.

Summary of Acute Communicable Disease Control Activities

In the appraisal of the acute communicable disease control activities of the Los Angeles City Health Department according to the standards of Appraisal Form for Local Health Work, a total of 57 points can be allowed out of a possible score of 95; the possible score is 95, rather than 100, because of the elimination of certain items that are not applicable to Los Angeles. The only items for which full credit can be allowed are: the completeness of reporting acute communicable disease cases as evidenced by current fatality rates; the amount and type of laboratory service available for acute communicable disease control; and the diagnostic service available to private physicians. Outstanding weakness of the city health department's acute communicable disease control activities are: lack of routine, competent, thorough epidemiological investigation of the important acute communicable diseases; failure to assure that a high percentage of children are protected from diphtheria and smallpox by immunization and vaccination; and an insufficient number of nursing visits to cases of acute communicable disease cared for in the home. Other deficiencies have been indicated in the detailed discussion of the appraisal of acute communicable disease control activities.

Quarantine and Morbidity Division

The quarantine and morbidity division of the city health department is responsible primarily for the control of the acute communicable diseases. In addition to this work, the official duty of physicians attached to this division (with the exception of those in the San Pedro, Venice-West Los Angeles and Van Nuys-Tujunga health districts) includes home calls upon request to furnish medical care to any sick person in their respective districts; this service was contemplated for the indigent but no effort is made to establish that status before responding to first aid. The physician serving the Venice-West Los Angeles health district, and the part-time physician serving Tujunga in the Van Nuys-Tujunga health district, also make some medical care

calls but they are not officially responsible for rendering this service. City health department physicians make up to three visits upon any request without regard to ability to pay or eligibility for medical care by the county.

The quarantine and morbidity division is under the general supervision of the chief deputy health officer of the health department and also under the coordinating supervision of the assistant epidemiologist. The chief quarantine officer, who is a layman, is in direct charge of the work of the division.

Personnel

The personnel of the quarantine and morbidity division is as follows:

Central Office (Metropolitan Health District)

Chief quarantine inspector—In charge of the quarantine work of the division.
Assistant chief quarantine inspector—Assists the chief and covers a district for quarantine work.

4 Quarantine inspectors—Each covers a district for quarantine work.

2 Quarantine inspectors—Work in central office doing clerical work.

Morbidity clerk—Office work and answering telephone.

Stenographer—Stenographic work.

7 assistant health officers (full-time physicians—Each covers a district in downtown metropolitan area for communicable disease and medical care calls.

3 physicians (part-time)—Assist and relieve district physicians, do school work in the parochial schools, school immunization, et cetera.

Watts Health District

Assistant health officer (physician)—Communicable disease and medical care calls in this district.

(Quarantine inspector from central office also covers this district.)

San Pedro Health District

Assistant health officer (physician)—Covers this district for communicable disease calls.

Quarantine inspector—Quarantine inspections in this district.

Venice Health District (Includes West Los Angeles)

Assistant health officer (physician)—Communicable disease calls and quarantine work in this district.

Van Nuys Health District (Includes Tujunga)

Assistant health officer (physician)—Communicable disease calls in Van Nuys area.

Physician (part-time)—Communicable disease calls in Tujunga area.

Quarantine inspector—Quarantine work for whole district.

All the members of the staff of the quarantine and morbidity division are on a civil service status, except the physicians. The chief quarantine inspector has been with the health department more or less continuously since 1920 and has had his present position since 1926. The assistant chief quarantine officer has had 17 years of service. All the quarantine inspectors, except one who has been in the division only a year, have anywhere from 9 to 19 years of service. The morbidity clerk and the stenographer have 15 and 4 years of service, respectively. The various physicians attached to the division have had anywhere from 6 months to 15 years of service, the average being 8 to 9 years.

Function

In discussing the functions of the division of quarantine and morbidity and the procedure followed in exercising these functions, it is necessary to consider separately the quarantinable diseases, and the reportable diseases that are not quarantinable. The following is a list of these two groups of diseases, as specified by the State Department of Public Health.

Quarantinable Diseases

Cholera (Asiatic)	Poliomyelitis (acute anterior)
Diphtheria	Scarlet fever
Encephalitis (epidemic)	Smallpox
Leprosy	Typhoid fever
Meningitis (epidemic)	Typhus fever
Plague	Yellow fever

Reportable Diseases—Not Quarantinable

Anthrax	Mumps
Beri-beri	Ophthalmia neonatorum
Botulism	Pellagra
Chickenpox	Paratyphoid fever
Coccidioidal granuloma	Pneumonia (lobar)
Dengue	Psittacosis
Dysentery (amoebic)	Rabies
Dysentery (bacillary)	Relapsing fever
Erysipelas	Rocky Mountain spotted fever
Fluke infections	Septic sore throat
Food poisoning	Syphilis
German measles	Tetanus
Glanders	Trachoma
Gonococcus infection	Trichinosis
Hookworm infection	Tuberculosis
Influenza	Tularemia
Jaundice (epidemic)	Undulant fever
Malaria	Whooping cough
Measles	

The State Department of Public Health has special report cards to be used in reporting cases of gonococcus infection, syphilis and tuberculosis.

All case reports for the reportable diseases, both quarantinable and nonquarantinable, go directly to the central office of the quarantine and morbidity division of the city health department, or indirectly through one of the four health district offices. As a general rule (and the practice is encouraged) practicing physicians report the quarantinable diseases by telephone and the state report card is actually made out in the office of the quarantine and morbidity division. Conversely, physicians are encouraged to report the nonquarantinable diseases by mail, properly filled out on the state report card. All case reports for the reportable diseases are handled exclusively in the office of the quarantine and morbidity division except for tuberculosis and venereal disease case reports.

All tuberculosis case reports are first received in the quarantine and morbidity division where they are segregated and sent to the tuberculosis division; after extracting such information as is desired from these cards, they are sent back to the office of the quarantine and

morbidity division for forwarding to the State Department of Public Health.

Venereal disease case reports from private physicians and treatment agencies other than those maintained by the city health department are received in the morbidity and quarantine division. The originals are forwarded to the State Department of Public Health and copies are filed in the quarantine and morbidity division; none of these case reports of venereal diseases go through either the men's or women's venereal disease divisions. Similarly, case reports for venereal disease patients seen in the treatment clinics of the men's or women's venereal disease divisions are sent into the State Department of Public Health from the quarantine and morbidity division, but a record of these cases is not kept in the files of the latter division.

All communicable disease cases reported by telephone, except in those areas served by the four health district offices, are received in the central office of the quarantine and morbidity division. The morbidity clerk and one of the quarantine officers working in the central office take all these calls, make out the state report card, and also enter certain information on a quarantine inspector's card, or an assistant health officer's case visit form, depending on whether it is a quarantinable disease, a request for a confirmation of a diagnosis, et cetera. About 90 per cent of the calls from the Watts health district are also received in the central office since the quarantine officer serving this area works out of the central office and there is no clerk in the Watts office. In the San Pedro and Van Nuys-Tujunga health districts it was estimated that about 90 per cent of the communicable disease calls are received directly in the district offices. In the Venice-West Los Angeles district, about 50 per cent of the calls are received in the central office. All these calls from the various health districts coming direct into the central office are then relayed to the proper district office. Some of the clerical work connected with making out the case file cards and state report cards is done in the central office for these districts, since San Pedro and Van Nuys are the only ones having a clerk.

Procedure for Handling Quarantinable Diseases

When the report of a case of a quarantinable disease is received from a practicing physician, and the diagnosis has been definitely established, a quarantine inspector from the quarantine and morbidity division visits the case to establish quarantine and to give verbal and printed instructions to the householder as to quarantine regulations, isolation of the patient, et cetera. When the period of quarantine is over the quarantine inspector releases the patient, taking the necessary release cultures for those diseases in which release cultures are required. None of these cases are seen by a physician from the quarantine and morbidity division unless the lay quarantine inspector is in doubt as to whether the patient has made a clinical recovery at the time of release.

In the case of a report of a quarantinable disease in which the reporting physician asks for confirmation of his diagnosis, or where a case is reported by other than a physician, the physician from the morbidity and quarantine division serving the district in which the patient is located, sees the case. If he confirms the diagnosis he estab-

lishes quarantine, and the case is then turned over to the quarantine inspector for supervision and release.

If the physicians of the quarantine and morbidity division feel in need of consultation in the diagnosis of a quarantinable disease, they call the epidemiologist of the city health department, or his assistant.

Further comment on the method of handling certain of the specific quarantinable diseases by the Los Angeles City Health Department will be found elsewhere in this report.

Procedure for Handling Reportable Diseases (Nonquarantinable)

Since these diseases are not quarantinable, the quarantine inspectors ordinarily are not concerned with them. Prior to about three years ago, every case of pertussis was visited by a quarantine inspector because of the excessive incidence of this disease. The purpose of these visits was to instruct the person in the home who was responsible for the care of the child having the disease, as to precautions to take to prevent the exposure of other children. In instances where the infected child was not being properly isolated after instruction, a quarantine of the household was invoked. This procedure required so much of the quarantine officers' time that it has been largely abandoned in favor of mailing printed isolation instructions to all cases of whooping cough reported. The quarantine inspectors occasionally are called upon to investigate, and quarantine if necessary, cases of the non-quarantinable reportable diseases when the infected individual is reported to be unnecessarily exposing other persons to his infection. Again, the lay quarantine inspectors may make investigations of certain diseases, such as undulant fever, in an attempt to determine the source of infection and for completion of the State Department of Public Health's epidemiological investigation form that is required for these cases. On the whole, however, the quarantine inspectors do not very frequently participate in any control of the nonquarantinable diseases.

Ordinarily the physicians of the quarantine and morbidity division do not see cases of the nonquarantinable reportable diseases unless there is a question as to the diagnosis, or to render medical care if the case is an indigent one and is located in a part of the city where indigent medical care calls are made by the city health department physicians. Ordinarily when a private physician reports a case of a nonquarantinable reportable disease, and a diagnostic consultation has not been requested, the case is not contacted by a representative of the city health department.

As stated before, the nonquarantinable reportable diseases are usually reported by mail on the state report card. School and health department nurses' reports are frequently accepted for the more common nonquarantinable diseases such as measles. The practice is said not to be indiscriminate in regard to all such diseases and such a report is accepted only when the reporting nurse is known to be reliable because of long experience and practical training.

Further discussion of the control practices in certain specific non-quarantinable reportable diseases will be found elsewhere in this report.

Indigent Medical Care

A peculiar situation exists in the city of Los Angeles in that the medical care of the indigent is regarded as a county responsibility for part of the city, and as a city responsibility in the remainder of the city; legally the county is entirely and solely responsible. Those portions of the city included in the department's health districts known as the Van Nuys-Tujunga health district, the Venice-West Los Angeles health district, and the San Pedro health district are supplied indigent medical care by the Los Angeles County Department of Charities through the services of a panel of physicians serving these various districts.

Although the making of home calls on the indigent sick is not an assumed responsibility of the city health department in the Van Nuys-Tujunga, Venice-West Los Angeles, and San Pedro health districts, this limitation is not strictly observed in all these areas. The assistant health officers in the San Pedro and Van Nuys health district offices made no indigent medical care calls. The assistant health officer serving the Venice-West Los Angeles health district is frequently called upon to make home calls to the indigent sick, usually at the request of the Santa Monica office of the county's department of charities, but these constituted only 5 per cent of all the home calls made by this physician, however, during the fiscal year ended June 30, 1938. The part-time physician serving the Tujunga area of the Van Nuys-Tujunga health district made about 65 per cent of his calls in the interest of the indigent sick during the fiscal year ended June 30, 1938. For that portion of the city known as the metropolitan area, and in the Watts District, the physicians of the quarantine and morbidity division serving these areas also answer calls from the indigent sick. Practically all the requests for indigent medical care, in the portion of the city supplied this service by the city health department, come by telephone into the central office of the quarantine and morbidity division. The only types of cases that are not accepted are alcoholics, maternity patients, and miscarriages. At the time the call is received an attempt is made to determine whether the patient is indigent or not, but if the breadwinner is not working the request is approved in any case for the first visit.

A physician from the quarantine and morbidity division visits the case and determines the nature of the illness. If the patient is in need of extensive medical care he is referred to the county hospital, or if ambulatory he is referred to hospital's out-patient clinic. The city health department physicians carry a supply of common staple drugs with them, and if the patient is not acutely ill and is expected to recover within a short time, he is given medical care. Rarely, however, do the health department physicians make more than three return visits to the same case. If more than this number is required some other disposition is made of the patient.

Miscellaneous Activities

In addition to the regulatory functions in the control of the acute communicable diseases, and the furnishing of a limited indigent medical care service in a portion of the city, the quarantine and morbidity division has a number of other activities. The quarantine officers con-

stitute the field force for the rabies control activities of the city health department and make the initial investigation of all dogs reported to have bitten one or more persons. This activity is discussed in more detail in the section dealing with the activities of the rabies control division.

All exterminators and cyanide fumigators operating in the city must have a personal permit from the city health department. These are issued, good for one year, by the quarantine and morbidity division for a fee of \$5. Cyanide fumigators must have a fumigation permit before undertaking each fumigation, and inspections are made by quarantine inspectors at these times to determine whether proper precautions are being taken. There is no charge for these permits.

The physicians of the quarantine and morbidity division are frequently called upon to furnish professional services to other divisions of the city health department. The child hygiene division utilizes these physicians in many of its child hygiene clinics, particularly in the outlying districts. The physical examinations of parochial school children, incident to the school health program conducted in these schools by the nursing division of the city health department, are largely done by these physicians. These physicians do all the diphtheria immunizations in all schools in the city as a part of the diphtheria control program sponsored by the child hygiene division of the city health department. They also do all smallpox vaccinations done in all the schools of the city as required by state law, and participate in the smallpox control program sponsored by the quarantine and morbidity division.

It is still the practice of the city health department to fumigate the sick room, and oftentimes an entire home, following certain communicable diseases. Formaldehyde fumigation is always done in the entire home where a case of smallpox has occurred and as a general rule, in the sick room where a case of diphtheria or scarlet fever has died. Where a case of typhus fever has occurred the entire home is fumigated with cyanide.

The quarantine officers are required to make an inspection of all baled newspapers intended for shipment to the Orient and issue sanitary certificates as to their condition, when required by importing country.

Summary of Activities

No useful purpose would be served by reproducing here the entire itemized list of activities of the quarantine and morbidity division as shown in the health department's annual report for the fiscal year ended June 30, 1938. An analysis of certain of these activities, however, is pertinent to the purposes of this report.

In the annual report, the physicians of the quarantine and morbidity division are credited with making a total of 18,548 public health calls, and a total of 9,662 medical care calls. Included with the public health calls, however, are those of the assistant health officer and epidemiologist, or his assistant, who examine or review the records of all communicable disease cases admitted to the communicable disease unit of the county hospital. Visits to these cases concentrated in the institution constitute well over a third of the total number of public health calls.

Individual monthly reports were reviewed in order to arrive at an approximation of what percentage of the initial home calls made by the physicians of the morbidity and quarantine division were for medical care and what percentage were public health in nature. If the physicians in the outlying health districts (Van Nuys-Tujunga, Venice-West Los Angeles, San Pedro and Watts) are considered as one group, and the physicians covering the central metropolitan area as another, the percentages of their calls classed as either public health or medical care, were as follows for the fiscal year ended June 30, 1938:

	Calls for Medical Care	Public Health Calls
Outlying districts -----	29%	71%
Central metropolitan area -----	52%	48%

As is to be expected, the physicians serving the central metropolitan area make a much higher percentage of their total initial home calls for medical care of the sick, since this is the area in which the city health department has assumed for the county, responsibility for this service. It is interesting to note that 29 per cent of all the calls made in the outlying districts during the year were for medical care of the sick. This is particularly surprising because the city health department officially has assumed responsibility for this service in the Watts area only, of all the outlying districts.

If it is arbitrarily assumed that on the average, the physicians of the quarantine and morbidity division spend two-thirds of their time making home calls, the cost of medical care calls represents between twelve and thirteen thousand dollars of the total of all physicians' salaries. This cost does not include the cost of travel, incidental clerical work, et cetera.

The physicians of the quarantine and morbidity division performed a total of 19,677 smallpox vaccinations, and immunized a total of 10,775 individuals against diphtheria, in the schools of the city of Los Angeles during the fiscal year ended June 30, 1938; the sponsorship of these programs has been indicated elsewhere in this report. These physicians also made 87,424 miscellaneous examinations, many of which were examinations of school children for readmission, following a communicable disease or other illness.

The quarantine inspectors established and maintained a total of 3,057 quarantines. Included with these, are all quarantinable diseases admitted to the communicable disease unit of the county hospital—both city and county cases. The quarantine inspectors also made a total of 12,899 dog bite investigations and fumigated a total of 364 rooms following certain quarantinable diseases. Other miscellaneous activities of the quarantine inspectors during the year included the following:

Pertussis calls -----	70
Undulant fever investigations -----	7
Cyanide investigations (fumigations) -----	85
Sanitation calls -----	3

Rabies Control

This activity of the Los Angeles City Health Department is carried on by the rabies control division within the city limits. It has operated as a separate division of the health department for many

years. The present director of the rabies control division has been with the city health department for the greater part of the time since 1928 and in his present position for about a year; he is a doctor of veterinary medicine and was employed in the meat inspection division of the health department until appointed to his present position following the retirement of the former director. His compensation is \$2,400 per annum.

There is no clerical force and only one sanitary inspector is attached to the rabies control division. Field services are provided by the inspectors of the quarantine and morbidity division, the quarantine officers doing rabies control field work along with their regular quarantine activities, except in the Venice-West Los Angeles Health District where the division's own sanitary inspector does this work.

Due to the continuous increase in the occurrence of rabies among animals in Los Angeles and its environs, a rabies quarantine has been established by the State Board of Health. The quarantine was first invoked in Los Angeles County in territory adjacent to the city of Los Angeles in February, 1938. On March 26th, it was extended to include the entire city of Los Angeles. The essential provisions of this quarantine are that all dogs must be kept under restraint by leash, or within properly constructed enclosures on the premises of the owner. The quarantine was rendered temporarily ineffective through court action brought about by an organization of misguided and misinformed dog lovers. The state quarantine authority was eventually sustained; however, on March 1, 1939, the State Board of Health lifted the rabies quarantine in both the city and county. While there has been some improvement in the incidence of rabies in the city, the rabies problem can hardly be considered to be solved.

All complaints of loose or homeless dogs, and dog bites, occurring anywhere in the city of Los Angeles are referred to the office of the rabies control division. The emergency hospitals and the police department have a regular report form on which they make written reports on all persons coming to their attention who have been bitten by dogs. Private physicians report persons coming to them for treatment for dog bites, either by card or by telephone.

When a dog bite is reported to the rabies control division an attempt is first made to locate the dog. If the owner of the dog, or location of the dog, is not known by the informant reporting the occurrence of dog bite, a card is mailed to the person sustaining the dog bite, asking him to report to the office of the rabies control division to give additional information. As soon as the address of the owner of the offending dog, or the whereabouts of a homeless dog is determined, the quarantine officer in whose district the dog is located makes an investigation. If the dog has a home and appears perfectly normal and healthy, the owner is told he must keep the dog strictly confined on the premises for ten days; if there is any doubt as to the owner's willingness or intent to cooperate a quarantine sign is posted. The inspector makes a return visit on the third day and again on the tenth day for release of the animal if it has remained well in the meantime.

If the quarantine officer is not satisfied as to the dog's state of health when he makes his first investigation, the director of the rabies control division is notified and he makes an immediate investigation.

If the dog is suspected of having rabies, it is immediately impounded in the city dog pound or in a veterinary hospital, at the owner's expense.

At the time of the investigation of the dog, an attempt is made to get the names and addresses of any other persons bitten and a record is made of the treatment each received. If the animal is healthy at the end of the ten-day quarantine, no further contact is made with the persons bitten. However, if there is any suspicion that the dog may have rabies, an attempt is made to get all persons who were bitten, or in intimate contact with the dog, to come to the health department for anti-rabies inoculations.

When the biting dog can not be found, a card is sent to the person or persons who have been bitten asking them to report to the office of the division of rabies control for the purpose of attempting to determine the possibility of their exposure to rabies. The director questions the bitten person or persons very carefully to determine the circumstances leading to the dog's attack, the behavior of the dog, whether he attacked others, et cetera. If there appears to be any reason to believe that the dog might have been rabid, the bitten person is referred to the chief bacteriologist in the laboratory division, who is also a doctor of medicine. She questions the wounded person still further and after obtaining all pertinent information, she decides whether anti-rabies treatment seems indicated; needless to say, anti-rabies inoculations are advised whenever there is any doubt.

The operation of the city dog pound and the picking up of stray dogs is a function of the humane department of the Los Angeles city government. The department has a central pound, and branch pounds at San Pedro, Van Nuys, Venice and West Los Angeles. About ten dog catching wagons are operated for the entire city. An emergency wagon is also maintained to answer any call to pick up dogs suspected of having rabies; this wagon also picks up all dogs that are placed in the pound for quarantine on the order of the director of the rabies control division of the city health department. During the year 1938 about 10,000 stray dogs were picked up and placed in the dog pounds. Of these 7,595 were destroyed, the others being sold for pets. There are about 75,000 licensed dogs in the city. If there are again that many stray dogs, as is estimated by the director of rabies control, it is evident that the activities of the humane department are not sufficient to eliminate the stray dogs in the city very rapidly.

It is not a routine practice of the division of rabies control to make a laboratory examination of the heads of all rabid dogs to determine the presence of Negri bodies. If a positive clinical diagnosis is made of rabies in a dog, that is considered sufficient and laboratory confirmation is not considered necessary. Only when there is doubt as to whether the dog was rabid or not, or when the dog was not observed prior to death, is a laboratory examination made for Negri bodies. Good practice dictates the examination of the brain of all dogs suspected, or believed to have rabies.

The city health department made its own rabies vaccine up until June 1, 1939, in the laboratory division. At the present time it is being purchased. The vaccine is administered also in the laboratory division. Rabies vaccine is not ordinarily supplied to private physi-

cians for use on their private patients except under unusual circumstances.

Some idea of the volume of work handled by the rabies control division with the assistance of the quarantine officers of the morbidity and quarantine division, can be obtained from the following tabulations taken from the annual report of the Los Angeles City Health Department for the fiscal year ended June 30, 1938:

Complaints received	10,835
Persons bitten	10,330
Rabid animals	728
Persons bitten by rabid animals.....	330

During this same period the laboratory division performed the following work related to rabies control activities:

Rabies vaccine prepared (20c.c. vials).....	889
Dog heads examined for rabies.....	313
Rabies treatments	607
Interviews of bitten persons.....	491

In addition to the number of persons given rabies inoculations in the laboratory division, the district physicians of the morbidity and quarantine division gave this protective treatment to 285 individuals. This makes a total of 892 persons given anti-rabies treatment during the year by the Los Angeles City Health Department.

Vaccinations and Miscellaneous Medical Examinations

The city health department maintains a special division of vaccinations and miscellaneous medical examinations under the direction of a doctor of osteopathy. At the time of this survey the staff of the division consisted of the full-time director and a part-time volunteer clerk who is not on the regular staff of the city health department. The director has been with the city health department since October 1, 1918, and has held his present position during his entire period of service. His compensation is \$3,120 per annum.

The functions carried on by the division of vaccinations and miscellaneous medical examinations can be enumerated briefly as follows:

(1) Smallpox Vaccinations. Any person coming to the central office of the city health department and requesting smallpox vaccination, is referred to this division. In addition to these voluntary requests for this service, there are a number of large commercial organizations in Los Angeles that require all their employees to be vaccinated and new employees are referred to the city health department to obtain this protective measure. Among those coming to the city health department requesting and receiving smallpox vaccination are many transoceanic travelers who are required to present evidence of successful vaccination (sometimes in the form of a certificate of the city health department) before being allowed to embark for certain foreign countries.

(2) Typhoid Immunizations. A rather limited number of these are given, the majority of requests coming from these ocean travelers who expect to be exposed through travel in countries where this disease is prevalent or endemic.

(3) Examination of Milk Handlers. All handlers of milk that is to be retailed as raw milk are required to have a physical exami-

nation and certain laboratory tests, performed in a recognized laboratory, twice a year. Many of these examinations are made in this division, a fee of \$1 being charged for the service. The examination consists of a general physical examination and the collection of a stool and urine specimen for laboratory examination. Blood specimens for serologic examination are not routinely taken.

(4) Examination of Bakery Employees. This examination is similar to that for retail raw milk handlers. The regular examination of bakery employees is not a requirement of the city health department. The health departments of certain neighboring cities, however, do require that bakery employees have periodic physical examinations. Some of the Los Angeles bakeries that ship their products to these municipalities send their employees to the city health department for the required physical examination. A fee of \$1 is charged for these examinations.

(5) Examinations for Passport Health Certificates. This division makes upon request physical examinations when required of persons seeking consular visa of their passport and furnishes the necessary certification of the person's state of health. A fee of \$1 is charged for these examinations.

(6) School children who have recovered from a quarantinable disease, are required to present a certificate from a physician of the city health department before being readmitted to school. Children absent from school because of a communicable disease that is not quarantinable, or if absent from school for five days or more from any illness, must present a certification of recovery before readmission to school; this readmission health certificate may be obtained from a number of sources, one of which is any physician of the city health department and many children seeking certificates for readmission to school are examined by the director.

(7) Many nurseries in the city require that children, before they are accepted for care, must have a physical examination and negative throat cultures. Many of these children are examined, and their throats cultured by the director. The bacteriological examinations are made by the laboratory division.

(8) Certain summer camps for children require that applicants must present evidence of a physical examination by a physician. Some of these come to the city health department for this service and are examined by the director; routine throat cultures are not taken for these examinations.

This outline briefly enumerates the routine functions and duties of the division of vaccinations and miscellaneous medical examinations. The volume of service performed in carrying out these functions during the fiscal year ended June 30, 1938, as shown in the annual report for the city health department, is as follows:

Examinations:	Individuals
Schools, camps and nurseries-----	5,827
Bakers -----	152
Dairy workers -----	987
Passport health certificates-----	274
Immunizations:	
Smallpox vaccinations -----	2,857
Typhoid immunizations (individuals)-----	146

The fees collected for the physical examinations of dairy and bakery workers, and of persons seeking a passport, during this same period, according to the department's annual report, were as follows:

Physical examination for passports-----	\$298.00
Dairy workers -----	987.00
Bakery workers -----	152.00
	<hr/>
	\$1,437.00

These fees are collected in the accounting office of the department of health and are turned over to the city treasurer for deposit in the general fund of the city, as required by city ordinance.

Comment

The greatest need of the Los Angeles City Health Department in order to improve its acute communicable disease control activities, is a reorganization of the present administrative structure so that these activities are brought under direct medical supervision. They might well be made a part of the activities of a division of preventable disease control which would include, as additional subdivisions, tuberculosis and venereal disease control, et cetera. The present arrangement whereby the division of quarantine and morbidity is not under the direct, general supervision of the assistant health officer and epidemiologist is too loose and too irregular. As a result the routine operation of this division becomes a responsibility of the lay chief quarantine inspector whose only qualification for his duties is several years of experience in the enforcement of quarantine regulations. Thus we find the division bending most of its efforts to the blind enforcement of quarantine regulations, ordinarily a poor means at best for controlling most acute communicable diseases, and preserving such antiquated customs as fumigation after smallpox, while neglecting the routine competent epidemiological investigation of the important acute communicable diseases. Epidemiology is a highly specialized activity that must be carried on by and under the direction of a physician trained in this particular field of public health. It involves more than the mere filling out of a questionnaire form to be placed in the files.

The epidemiologist and his assistant, under the present administrative arrangement, are devoting too much time to rendering consultative and diagnostic service. They have been made responsible for checking the diagnosis in every case of communicable disease admitted to either of the communicable disease units of the county hospital. This regularly takes three full days of the assistant epidemiologist's time each week. This association with the county hospital is invaluable to the epidemiologists as a means of perfecting their diagnostic ability, but the true function of an epidemiologist is to ferret out and control source of infections and case contacts. A hospitalized case is no longer a public menace and it seems illogical for the city health department to devote such an excessive amount of time to the diagnosis of these cases rather than to their epidemiological investigation to determine the source of their infection and whether they have infected susceptible contacts.

The diphtheria immunization and smallpox vaccination work of the city health department is commendable, but it suffers from multiple administrative responsibility. The child hygiene division has

assumed responsibility for the diphtheria immunization program, but the organization of the public school diphtheria immunization clinics is the responsibility of the nurses of the health service section of the public school system, and immunizations are performed by physicians from the quarantine and morbidity division. On the other hand, the quarantine and morbidity division is responsible for the smallpox vaccination program in the schools but the organization of vaccination clinics in the public schools is again a function of the nurses of the health service section of the public school system. It is vitally important that the exact immunization and vaccination status of the child population should be known and yet the health service section has not made use of school health records to determine these percentages for the school child population, and the city health department has not developed a means of obtaining records of immunizations and vaccinations done outside of the department. The percentage of school children protected against diphtheria and smallpox could readily be determined by the health service section from existing school records, and a fair idea of how completely the preschool group is being protected could be estimated from the records of those children entering school for the first time. The administration of programs for diphtheria immunization and smallpox vaccinations in the schools should be a part of the function of a division of preventable diseases of the city health department in accordance with the provisions of state laws. The cooperation of the health service section in planning and carrying out these programs is essential and a means should be devised whereby the immunization and vaccination status of the school will be known and recorded accurately and currently.

There should be a closer administrative relationship between the nursing activities in the interest of acute communicable control and the other control activities. Home visits by nurses to acute communicable disease cases have been limited to only those patients not under the care of a private physician, and the frequency, nature and purpose of these visits have not been integrated with the work of the quarantine inspectors, and only to a limited extent with that of the physicians, of the quarantine and morbidity division. The lay quarantine officers assume responsibility for the instruction of families as to protective measures for the prevention of the spread of a quarantinable disease to other members of the family, a function which nurses with their technical training are eminently better qualified to perform. There is a need for many more home nursing visits to acute communicable disease cases before the Los Angeles City Health Department can hope to approach the standards set down in the appraisal form. All activities for the control of the acute communicable diseases—epidemiological investigation, diagnostic service, enforcement of quarantine regulations, home nursing visits to these cases, and the promotion of immunization programs—should be under the direction of, and integrated by, the chief of a division of preventable disease control. Various functions should be assigned to those classes of personnel best suited through technical training to perform them.

Public health education is a most important function of any health department. A health department for a city the size of Los Angeles could well afford and could make excellent use of a person trained in public health educational methods. At the present time, the health

officer and various division heads prepare educational leaflets and pamphlets, radio talks, newspaper releases, charts and posters, et cetera. A greater volume of material of these various types, prepared in a form most apt to achieve their educational purpose, would be possible if a person specially trained in health education techniques were available and the facilities of the city government printing office were utilized; the department should provide more space, better equipment and such additional personnel for these activities.

There is no justification for the existence of a vaccination division, a rabies control division or a rodent control division as primary divisions of the city health department. The work of the vaccination division should be made a part of the work of a division of preventable disease control and rabies control should be carried on also as a subdivision of this primary division. Rodent control should be a subdivision of the sanitary inspection services.

Recommendations

1. A division of preventable disease control should be organized to be under the direction of a well trained epidemiologist.

2. All activities for the control of the acute communicable diseases should be under the direct supervision of or integrated and coordinated by the director of the division of preventable disease control.

3. More home nursing visits should be made to cases of acute communicable diseases, and the beneficiaries of this service should not be arbitrarily restricted to those not under the care of a private physician.

4. Instruction of families in home isolation technique should be a function of the public health nurses and not the quarantine officers.

5. Thorough epidemiological investigations of all cases of the important acute communicable diseases should be made by and under the direction and supervision of a trained epidemiologist. Epidemiological investigation should be emphasized as the principal measure for preventing the spread of communicable diseases, rather than the blind enforcement of quarantine regulations.

6. The immune status of the child population against smallpox and diphtheria should be determined and, if necessary, means devised to raise the immune status to the point where an epidemic occurrence of these diseases is precluded. Every child should be afforded an opportunity to obtain these protective immunizations.

PUBLIC HEALTH NURSING

By ANNA HEISLER, Regional Public Health Nursing Consultant, U. S. Public Health Service

Legal Provision for Public Health Nursing

The existing authority for public health nursing activities and the provisions for the employment of public health nurses and school nurses by official agencies in California are as follows:

"The board of trustees, council or other corresponding board of any incorporated town or city of this state may employ one or more public health nurses, each of whom shall be a registered nurse possessing such qualifications as may, at the date of her employment, be prescribed by the State Department of Public Health." (Pol. Code; 1919 enactment, section 3062.)

"Boards of school trustees, and city * * * boards of education, may appoint physical inspectors, including a nurse or nurses, to give care to the health and physical development of pupils and to provide health supervision of the school buildings and pupils enrolled in the public schools under their jurisdiction." (School Code section 1.100, 1.101, and 1.110.)

"No * * * nurse or other person shall be employed or permitted to supervise the health and physical development of pupils under this chapter or any other provision of law unless such person holds a health and development certificate granted in accordance with the provisions of this code." (School Code section 1.112.)

Regulations relative to qualifications, credentials, and certificates for public health nurses and school nurses in California adopted by the California Board of Public Health at its regular meeting held May 8, 1938, are cited:

"In accordance with the provisions of section 4225b of the Political Code, the following shall be the qualifications required for a certificate in public health nursing:

1. Applicant shall be a registered nurse under the law of California.
2. Applicant who has completed a course in public health nursing from a school whose curriculum has been approved by the California State Board of Public Health may receive a certificate without examination. If the applicant completed the public health nursing course more than ten years prior to the date of application for certificate, she must have had at least two years' experience in public health nursing in the interim in order to qualify for the certificate without examination.
3. Applicant who presents evidence (1) of having had two years or more experience in general public health nursing on the staff of a public health organization approved by the California State Board of Public Health within ten years preceding the date of application and (2) of having completed six units in public health nursing at the University of California in Berkeley or Los Angeles, or at any other university having an approved curriculum in public health nursing may receive a public health nursing certificate, on passing an examination given by the State Board of Public Health. The required six units of work must include "Principles and Practice in Public Health Nursing" and "Public Health and Preventive Medicine."
4. All applications for the public health nursing certificate shall be filed in the office of the State Department of Public Health, 305 State Building, San Francisco.
5. These regulations shall be in force and effect on and after January 1, 1939."

The Commission of Credentials of the State Board of Education issues credentials and life diplomas by authority of the State Board of Education. (School Code sections 5.120-5.126.)

A school nurse, or any other person engaged in health and development work in the public schools, must hold an unrevoked license to practice his profession in California and a valid school credential authorizing him to engage in health work in the public schools. (School Code sections 5.420; 5.480; 5.485.)

"An applicant for the school nurse credential must submit the following:

- a. A certificate from a physician licensed to practice medicine and surgery that the applicant is physically and mentally fit to engage in school service.
- b. A certificate as a public health nurse issued by the California State Board of Health.
- c. Verification of the completion of six semester hours of work to include the following:
 1. Educational psychology.
 2. Administration of the school health program.
 3. An elective course chosen from the following:
 - a. Social case work.
 - b. Rural education.
 - c. Child hygiene."

(State of California Department of Education.
Bulletin No. 12, June 15, 1935.)

The nurses who teach in high school must meet the requirements prescribed in the State School Code:

"The minimum general standard for each type of credential shall be prescribed in this article.

For the general secondary school credential, five years of university or college, or of university, college, and normal school education of present-day standard, including a baccalaureate degree and the professional training prescribed by the State Board of Education; or equivalent qualifications.

For the special secondary credential, as high a general standard for each of the different subjects as conditions at the time will warrant." (School Code sections 5.130, 5.131, 5.135.)

The following are additional laws relating to nursing and health in the schools: Every employee of a school district of any type or class, who, after having been employed by the district for three complete consecutive school years in a position or positions requiring certification qualifications, is reelected for the next succeeding school year to a position requiring certification qualifications, shall except as hereinafter otherwise provided, at the commencement of said succeeding school year, be classified as and shall become a permanent employee of the district. (School Code section 5.500.)

The control of smallpox shall be under the direction of the State Board of Health, and no rule or regulation on the subject of vaccination shall be adopted by school or local health authorities. (School Code section 3.60.)

The charter of the city of Los Angeles makes provisions for the employment of public health personnel only in very broad terms applicable to the various departments, including the health department.

These provisions are found in Article VI, from which brief excerpts are quoted:

"Section 80. Subject to the provisions of this charter, the rules of the department and the instructions of his board, said general manager shall have the power and duty:

- (1) To administer the affairs of the department as its chief administrative officer;
- (2) To appoint, discharge, suspend, or transfer the employees of the department, (other than the secretary of the board and the chief accounting employee of the department), and to issue instructions to said employees (other than the secretary and the chief accounting employees), in the line of their duties, all subject to the civil service provisions of the charter;
- (3) To expend the funds of the department in accordance with the provisions of the budget appropriations or of appropriations made subsequent to the budget."

The nurse whose duty it is to inspect hospitals, sanitariums, maternity homes, day nurseries, and boarding schools finds the standards for these institutions defined in Article 2, sections 32.07 to 32.13, inclusive, of the official city health ordinances.

The requirements, qualifications, duties, salary, et cetera, for all public health nurses employed in the city of Los Angeles under civil service regulations, are set forth in a recent official bulletin of civil service tests as follows:

"NURSE—PUBLIC HEALTH—CODE 5201 (m): Last Date to File—5:00 p.m., Tuesday, November 22, 1938. Date of Test—1:30 p.m., Wednesday, November 30, 1938.

MINIMUM AGE: 21 years.

REQUIREMENTS: Graduation from an accredited training school for nurses within the eight years next preceding date of test, together with a student nurse or postgraduate course in public health nursing. Possession of a valid certificate as a Registered Nurse in the State of California; a general knowledge of the problems encountered in public health nursing, including child welfare, communicable diseases, bedside and school nursing, and social conditions; ability to meet and deal with the general public; good judgment, tact, and good physical condition.

DUTIES: Under general supervision to investigate and give instruction in the home in matters pertaining to general health, hygiene, sanitation, care and control of communicable diseases and child welfare; to give nursing care in the home and make necessary arrangements to correct detrimental social conditions; assist in municipal clinics; keep inspection and clinic records; to make personal investigations; and to perform related work as required.

NOTE.—Applicants will be required to pass a special medical examination before appointment.

SALARY: \$135.00 to \$150.00 per month.

SCOPE OF TEST:

	Relative Weights
1. Written test	6
2. Qualifications, determined by interview.....	4
Total	10"

All nurses are contributing members and beneficiaries of the city government's civil service retirement system which entitles them to retirement for superannuation or physical incapacity; certain benefits accrue to legal dependents also in case of death. Under the civil service system, continuous tenure is assured, contingent only upon the employee's efficiency.

History*

On March 1, 1898, the first district nurse in Los Angeles entered upon her duties in the district known as "Sonora Town." The College Settlement Association had first sought the help of the city health commissioner, and with his support appealed to the city council for aid in securing home nursing care for the indigent sick. When the city council agreed to pay the nurse's salary, the College Settlement Association provided a call station and living quarters for her in the settlement bungalow at the corner of Alpine and Castelar Streets. From this small beginning, public health nursing in Los Angeles gradually developed. The claim is made that by making an appropriation of \$50 a month for her salary, the city council gained for Los Angeles the distinction of being the first municipality in the United States to employ a public health nurse, although no special public health training or experience was required for the position which really was that of a public visiting nurse for indigent sick which was then the function of the settlement association.

In 1904 the first school nurse was employed by the city health department, subject to civil service regulations. This position was created to meet the public health needs in the city school system. On March 1, 1906, two more school nurses were added to the staff.

In 1908 the first maternity nurse was appointed to work under the College Settlement Association. In the same year, a nurse under civil service regulations was employed to work under the health department as inspector of boarding homes for children.

An emergency nurse employed during a measles epidemic in August, 1909, demonstrated by January, 1910, the necessity for a permanent appointee in the field of contagious disease control.

In 1910, one nurse was granted to the health and development department of the city schools to make home visits, following the physician's discovery of defects through routine examination of school children. The other nurses in the schools confined their work to control of contagion, dressing of minor wounds, first aid, accompanying children to the clinic, etc.

In 1910, infant welfare work was begun with the opening of a milk station at Bethlehem Institute, where the nurse modified milk prescribed by a physician who donated his services.

In 1910, the first tuberculosis nurse was appointed to work in conjunction with the Los Angeles Tuberculosis Society and to assist at the tuberculosis clinic held at the College of Medicine, 737 North Broadway.

In 1911, the nurses of the city health department began public health nursing in the parochial schools, and since have continuously carried a nursing service in all the parochial schools within the city limits.

* Sources of Information:

- (a) First Municipal Nurse in U. S., Agnes G. Talcott, *Pacific Coast Journal of Nursing*, June, 1939, pp. 340-341.
- (b) Pioneer Days in School Nursing, Elma V. Hill, *Los Angeles School Journal*, January 10, 1938, pp. 24-26.
- (c) MSS. History of the Los Angeles City School Health Department, Eunice Lamona, from files of Nursing Section, Los Angeles City Schools.
- (d) Files of the Nursing Division, Los Angeles City Health Department.

In 1913, the city council passed an ordinance creating a bureau of municipal nursing in the city health department under the direction of a commission of five members appointed by the city health officer to serve without compensation for a period not to exceed four years. The city health department budget for 1913 provided for 16 nurses, one to be chief nurse, and all under civil service examination. In 1915, a division of obstetrics was established in the bureau and a special group of nurses was assigned to this service.

By 1916, the board of education was employing in its health and development department six nurses who assisted with the physical examination of the school children and helped at the parent-teachers' dental clinics. At the same time the school nurses under the city health department examined these same children for pediculosis, and contagious or infectious diseases. Both groups of nurses were making home calls in the same families and there was consequently confusion and wasteful duplication; on every hand, there occurred similar overlapping of the services of the nurses of the two departments in the various other special fields.

Owing to these facts and owing to the ever-increasing demand for efficient nursing service in the rapidly growing city, the city council in July, 1916, made an appropriation for the employment of an expert to reorganize the work of the nursing bureau of the city health department and the services of Mary E. Lent of the National Organization for Public Health Nursing were obtained; after six months in the field, she assisted in starting the division of nursing on its way toward complete generalization of its nursing program. Miss Agnes G. Talcott was appointed chief nurse under civil service regulations. Los Angeles, again the pioneer, was the first large city in the United States to combine all types of public health nursing in one division, and to district the city for generalized nursing service.

Simultaneously the health work under the City Board of Education was in process of reorganization. In 1916, Doctor Irving Bancroft, the new director of the School Health and Development Department, requested the city health department to place all nursing work in the public schools under the Board of Education. Within the next two years twelve more nurses were added to the school staff; and in 1917 the school nurses were classified as "nurse inspectors," their present designation. By 1924, the staff had expanded to include 37 nurse inspectors, one chief nurse, and one assistant chief nurse. All school personnel are exempted from the city civil service requirements and regulations.

The Metropolitan Life Insurance Company inaugurated nursing service for their policyholders in the Los Angeles area in December, 1919.

At the present time, therefore, it is apparent that public health nursing in the city of Los Angeles is accomplished principally by two local official agencies—the health department and the board of education—and one state agency, the State Department of Public Health. However, considerable public health nursing is collectively accomplished in addition by various semi-official and private agencies, notably the Metropolitan Life Insurance Company, the Los Angeles Tuber-

culosis Association, the California State Nurses Association, the Los Angeles chapter of the American Red Cross, and by private industries. It is deemed necessary to present in this report the activities, et cetera, of all, in order that a comprehensive picture may be had, and to permit comparison of one with another and to constitute a background for the nursing activities of the official agencies and particularly the city health department with which latter this report is primarily concerned.

In May, 1937, there was published "A Study of Nursing in Los Angeles," which had been prepared by the Nursing Section, Health Division, Council of Social Agencies of Los Angeles. The purpose of this study was to assemble factual data regarding the variety and extent of public health nursing services in Los Angeles which might serve as a basis for more intelligent community planning of nursing activities. Since the status of public health nursing in Los Angeles has remained almost unchanged in the meantime, the study will be found of interest to those concerned particularly with the public health nursing phases of the health program.

Distribution of Nurses

The following table shows the present distribution of the public health and or other nurses employed by various official, semiofficial and nonofficial agencies in the city of Los Angeles who were engaged in public health nursing activities during the fiscal year ended June 30, 1938.

Agency	No. Nurses
City health department-----	73
Los Angeles city school district-----	68
Metropolitan Life Insurance Company-----	15
District No. 5, California State Nurses' Association-----	2
Los Angeles Chapter, American Red Cross-----	1
Industrial and commercial-----	30
Total-----	189

The staff of the nursing division of the city health department consists of one director, one assistant director, six supervising nurses, one instructor for student nurses, one chief nurse in women's venereal disease division, one inspector of institutions, and sixty-two field nurses. In addition the permanent staff is temporarily augmented by thirteen WPA nurses and a group of student nurses, varying in number from fifteen to eighteen.

The regular staff nurses carry a generalized nursing program including maternity, infant and child hygiene, communicable disease, tuberculosis, venereal disease control and instructive bedside nursing services, each serving her own assigned district. Theoretically, the nurses serve the entire city of Los Angeles, with an estimated population (1938) of 1,489,238; but in reality they reach only a relatively small proportion of that number. The restriction of the service is due to several factors, the most important of which probably are the economic basis for eligibility on the one hand and the limited nursing staff on the other.

The nursing staff of the health service section of the Los Angeles city school district during the fiscal year 1937-38 consisted of one chief nurse, one assistant chief nurse, one field supervisor, eighty-two nurse-

inspectors, and a varying number of substitute nurses. The city school district extends beyond the city limits and embraces 1,103.31 square miles, whereas the city of Los Angeles covers 450.7 square miles. The total district public school population for 1936-37, including kindergarten, elementary grades and high school, was 316,695. Twenty per cent of that total number (66,351 pupils) were enrolled in the eighty-seven schools that lie in county territory; therefore, only 80 per cent resided within the city limits. On this basis the number of school nurses serving the city children is estimated at sixty-eight, or 80 per cent of the total number of nurse-inspectors serving the entire city school district.

The assignment of schools to each nurse-inspector is made after consideration of the following factors: (1) the economic condition of the families, (2) the distance between schools, (3) the total enrollment, (4) hours of service in the school clinics, (5) amount of work with the school physicians, and (6) the age and ability of the nurse.

In addition to the nurse-inspectors, eighteen nurse-teachers, whose salaries are paid from teachers' salary funds, are employed to teach home nursing, hygiene, and first-aid in high schools. These nurse-teachers, as well as the nurse-inspectors, are deputized as health officers by the city health department and are assigned the responsibility of readmitting children upon their return to school after illness. The nurse-teachers set aside at least one period a day for this function.

It is roughly estimated that the equivalent of fifteen full-time nurses serve the Metropolitan Life Insurance Company policyholders who live in the city of Los Angeles. The total number of nurses employed by this company to serve their policyholders in southern California (including Santa Barbara and San Diego) is thirty-seven, one of whom is the director, another a supervisor.

Two nurses carry on an hourly visiting nursing service under the auspices of District No. 5 of the California State Nurses' Association. They serve only those families that are able to pay \$1.25 per visit (or more if the visit exceeds an hour). The number of patients attended by them is very limited, and their work can hardly be called public health nursing since their primary purpose is the rendering of nursing care rather than the teaching of disease prevention or of healthful living.

The Los Angeles chapter of the American Red Cross employs one full-time public health nurse who organizes and teaches classes in home hygiene and care of the sick, secures nurses to teach these classes, and aids the nurses in their teaching, by group instruction, by visits to the classrooms, and by individual conferences. Formerly she gave considerable assistance to the nurse-teachers in the high schools.

The number of industrial nurses is estimated by the state health department as thirty. For several reasons no attempt was made in connection with this survey to study the industrial nursing program or personnel. A questionnaire study had been made for the Council of Social Agencies in 1937* and the report of this study was available; an industrial hygiene survey of Los Angeles, which included nursing, was made in the summer of 1939 by the Bureau of Industrial

* Industrial Nursing Situation: Report prepared for Nursing Section, Council of Social Agencies, 1937, by Helen D. Halvorsen.

Hygiene, State Department of Public Health; detailed reference to that survey is found elsewhere in this report of the general public health survey of the city of Los Angeles. Mrs. Halvorsen's report states that the twenty-seven large industries answering the questionnaire (which was sent to a total of eighty-five industries employing five hundred or more workers) employed twenty-eight registered nurses. The report states also: "It appears * * * that little consideration is given to the public health aspect of nursing in industry."

White Memorial Clinic and Hospital, 309 North Boyle Avenue, is another agency which participates in home nursing service performed chiefly by postgraduate and undergraduate students. This home service to their patients includes prenatal visits, attendance at home delivery, and postpartum care. The nurses rendering this service have not been included in the list of public health nurses.

Both the Children's Hospital Society and the Orthopedic Hospital provide their own nurse follow-up for orthopedic cases.

Two nurses have been employed subsequent to period covered by this report, by the Los Angeles Tuberculosis Association since October, 1938, to do the follow-up work on cases found in a tuberculin-testing survey made in the schools in 1937-38. These nurses work under the direction of the division of nursing and in close cooperation with the tuberculosis division of the city health department.

Nursing Headquarters: Offices, Equipment and Aids

The central headquarters of the nursing division of the city health department is located in the department's building at 116 Temple Street on the third floor. In the central offices are the director and assistant director of nursing, the office supervisor, the instructor of student nurses and her assistant, together with the clerical staff, consisting of one clerk and two stenographers. The district nurses who work in the central health district territory immediately surrounding the central office and the nurse-inspector of hospitals, sanatoria, day nurseries and boarding schools also are in the central office.

The other five supervising nurses and the other district nurses make their headquarters in the fourteen branch nursing offices scattered throughout the city. The branch offices are equipped with the usual office furniture and files for nursing records, telephone, and equipment needed for health clinic services.

The office supervisor at central headquarters is in constant communication with these branch offices to relay information respectively to them as necessary. A messenger service is also maintained through which records and reports are transferred back and forth between branch offices and the central office daily. A copy of the city nursing manual is in each branch office and is followed closely as a guide.

The nursing division depends upon the statistical division of the city health department for the compilation of all statistical reports of the nurses' activities. The staff nurses are thus relieved of the responsibility of making their own individual summaries.

The field nurses have nursing bags of two types: one which is used when the nurse anticipates giving bedside care; the other, when the nurse expects to make educational visits only. Most of the nurses own cars and receive travel allowance on a mileage basis.

The department of health nurses wear a light tan silk pongee uniform, which seems well adapted to the Los Angeles climate. At the clinics and conferences, they wear over their uniforms coverall aprons, which are provided by the health department.

The nursing supervisory staff of the Health Service Section of the Los Angeles City School District have their headquarters on the eighth floor of the Chamber of Commerce Building, with the other offices of the city department of education. There is one clerical worker provided for the school nurses. The staff nurses of the city schools have their offices in the various schools to which they are assigned. In the health office at each school are the necessary record and report forms, filing cases and other equipment, furniture and supplies, such as are needed for school health work.

All these nurses use their own automobiles (except one who uses public transportation), and are reimbursed at the rate of four cents a mile. The school nurses wear pongee smocks during office hours in the school building. They do not wear a uniform outside the school building. They do not carry a nursing bag.

The two nurses employed by the Los Angeles Tuberculosis Association make their headquarters at the central office of the city health department and use the facilities and equipment of the nursing division and the tuberculosis division of the department.

The Metropolitan Life Insurance Company nurses have their headquarters at 1711 Maple Avenue, in a six-room house of the cottage plan, which has been adapted to meet their needs. The office is equipped with the usual office furniture, filing cabinets, record and report forms, et cetera. These nurses provide their own cars and are reimbursed for transportation expenses on a mileage basis. They wear a dark blue cotton uniform of a prescribed type. They carry the Stanley visiting nurse bag, containing standard equipment for a bedside nursing program.

The Red Cross nurse has her office at the American Red Cross Headquarters at 1218 Menlo Avenue and shares the services of a clerk with another Red Cross worker.

Nursing Service Time Available

The estimated average service days available from the public health nurses employed by the city health department during the fiscal year 1937-38 (after deducting Sundays, national and state holidays, two weeks for annual vacation, and some a half-day or others a whole day on Saturdays for a five-day week) amounts to $255\frac{1}{2}$ days for each nurse, or a total of $18,651+$ days for 73 nurses. However, the actual number of hours of service rendered according to the annual report of the nursing division for the fiscal year ended June 30, 1938, were 143,067 hours, or $17,883+$ days on the basis of an eight-hour day. During the first half of the fiscal year, city employees worked 44 hours a week; beginning January 1, 1938, they have worked only 40 hours a week (five-day week plan) plus four hours one Saturday morning a month (conference).

The 14,338 hours of service available from the ten nurses employed by the Works Progress Administration for work with the city health

department were equivalent to 1,792+ eight-hour days, or the service time of seven field nurses.

An average of eighteen student nurses were with the health department for 176 hours a month for a total of 214 student months, or 4,708 days. Only a negligible portion of their time, however, could be estimated as available service time, since their primary function during their affiliation with the health department is to learn public health nursing processes. Consequently evaluation of their effective contribution is not included.

The bases upon which the service time of the school nurses has been estimated are: (a) The Annual Report for 1937-1938 of the Health Service Section, Los Angeles City School District, and (b) information obtained through conferences with personnel of the Health Service Section. The eighty-three nurse-inspectors work six hours a day, for five days a week during the ten months of the school year (a total of 99,600 hours); the chief nurse and her assistant work eight hours a day for the calendar year with one month's vacation (a total of 3,648 hours); the fifteen nurse-teachers reserve one period a day (45 minutes) for readmission of students who have been absent on account of illness and for health services (a total of 2,250 hours); the service time of the nine substitute nurse-inspectors has been more or less arbitrarily computed as equivalent to that of three full-time nurses (or 3,600 hours). The grand total is 109,098 service hours, or 13,637 days of eight hours each. But on the basis of the school population residing within the city and assuming equal distribution of public health services, only eighty per cent of these service days, or 10,909.8 days, should be credited for service in the city.

The Metropolitan Life Insurance Company policyholders who are Los Angeles city residents are stated to receive a total amount of nursing care equivalent to service rendered by fifteen of their nurses. Since these nurses work $37\frac{1}{2}$ hours a week and have an average of about three weeks' vacation annually and approximately a week of "preventive sick" leave, and also the usual holidays, each nurse works about 214 eight-hour days. The fifteen nurses therefore, would be available for 3210 days of service a year.

It is impossible to estimate the hours of service rendered by the two hourly visiting nurses of the State Nurses' Association, since their reports were not available; in any event their work is essentially bedside nursing rather than preventive public health nursing.

The one nurse employed by the Los Angeles chapter of the American Red Cross, the nurse-teachers employed by the Los Angeles city schools, and the volunteer nurse-teachers secured by the Red Cross provided in all, 7100 hours of instruction in home hygiene and care of the sick.

The service time of the two nurses now employed by the Los Angeles Tuberculosis and Health Association and the two nurses employed by the State Department of Public Health and assigned to the city health department for venereal disease control work is not included in this section because their services did not begin until October, 1938, three months after the close of the fiscal year covered by this survey, ended June 30, 1938.

Distribution of public health nursing time available in the city of Los Angeles during the fiscal year ended June 30, 1938, is computed and summarized in the following table:

Agency	Equivalent No. of Full-time Nurses*	Total Effective Time: Nurse-days	Per Cent of the Whole
City health department-----	73	17,883	52.2
City health department, WPA-----	7	1,792	
School district-----	43	10,910	28.9
Miscellaneous (Red Cross, nurse-teachers of school district, State Nurses' Asso- ciation, etc.)-----	28	7,100	18.9
Total-----	151	37,685	100.0
Metropolitan Life Ins. Co.**-----	12	3,210	----
Private industry, etc.**-----	30	7,665	----
Grand total-----	193	48,560	----

* Based upon 8-hour day, 255.5 days per year.

** Not included in percentage of the whole, as not primarily public health.

Qualifications

Relatively few public health nurses employed in the city of Los Angeles meet the qualifications recommended by the National Organization for Public Health Nursing^{a, b} or the minimum qualifications approved by the Conference of State and Territorial Health Officers, at their meeting in April, 1939.^c

Not many in recent years have continued any formal courses in the colleges or universities of Los Angeles or elsewhere, beyond the requirements for the certificate in public health nursing which is rather liberally granted by the State Department of Public Health. This is true in spite of the fact that during the last two academic years, the University of California at Los Angeles has offered a curriculum in public health nursing of the type recommended by the National Organization for Public Health Nursing; and for many years the university has offered, through its extension division and summer session, many courses in related fields, such as psychology, sociology, et cetera. The University of Southern California has also offered courses that could be attended in off-duty hours.

Perhaps the emphasis on certain standards of preparation for certain positions has given the nurse and those who employ her a feeling of finality when she has met the minimum requirements prescribed by the state or by a local agency.

A review of the credentials of the 75 nurses employed by the city health department, as of July 1, 1939, reveals that 56 (almost seventy-five per cent) were graduated from schools of nursing prior to 1920; that only two have college degrees (only one with a major in public health nursing) and that only 31 others have had a few units of university work, in either the academic or the professional field.

Since all of the nurses employed by the city health department are under civil service regulations, and since civil service employment tends toward continuance in service until the retirement age regardless of keeping professionally up-to-date, it is not surprising that many of

^a Minimum qualifications for those appointed to positions in public health nursing. Public Health Nursing, March, 1936.

^b Minimum qualifications for nurses appointed to school nursing positions. Public Health Nursing, February, 1938.

^c The Health Officer, May, 1939, pp. 37-38.

these nurses have seen many years of service and that a considerable number fall into the higher age groups. The numbers of nurses who have remained with the health department for various periods of time are shown in the following list:

6.6 per cent or 5 nurses have remained	25 years or more
16.0 per cent or 12 nurses have remained	20 to 24 years
28.0 per cent or 21 nurses have remained	15 to 19 years
33.3 per cent or 25 nurses have remained	10 to 14 years
16.0 per cent or 12 nurses have remained	less than 9 years

The number of nurses in various age groups are as follows:

10.6 per cent or 8 are in the age groups	above 60
36.0 per cent or 27 are in the age groups	between 50 and 59
36.3 per cent or 28 are in the age groups	between 40 and 49
16.0 per cent or 12 are in the age groups	under 39

This group of nurses have a corporate membership in the National Organization for Public Health Nursing, but only ten of the group are individual members although sixty-six are members of the California State Organization for Public Health Nursing.

The two nurses employed by the tuberculosis association to work under the direction of the health department are in their middle twenties. One of these nurses has had two years of college training, and the other, one year; both had an undergraduate affiliation with the City Health Department of Los Angeles.

In reviewing the credentials of 111 nurses employed in the Los Angeles City schools (including nurse-inspectors, nurse-teachers, and substitute nurses) it was found that 17 have college degrees and six have completed formal courses in public health nursing which have been approved by the National Organization for Public Health Nursing; seventy-five have had some college work but in most instances the courses have been in the academic field, rather than in the professional field of public health nursing. A considerable number have availed themselves of the professional education opportunities offered by the University of Southern California, Immaculate Heart College, and the University of California at Los Angeles.

The eighteen nurse-teachers employed in the high schools are required to have the regular secondary credential required of all high school teachers, or in lieu thereof a special secondary credential which is sometimes granted on the basis of experience and special qualifications.

Nurses employed by the city school district may retire at the age of 65 with an income of \$100 a month as long as they live. During illness the school nurse receives 43 per cent of her salary for the period of absence, not to exceed 100 days in any one school year. Because of these liberal provisions and because of tenure provided for public school employees by the state law, the tendency is for school nurses to retain their positions. Of the 108 whose period of service is shown in the records examined, 67 school nurses (62 per cent) have been with the schools for more than ten years. The number of school nurses in the various age groups are as follows:

7.4 per cent or 8 are above 60 years of age.
13.9 per cent or 15 are between 50 and 59 years of age.
44.4 per cent or 48 are between 40 and 49 years of age.
37.0 per cent or 40 are under 39 years of age.

The professional affiliations of the school nurses incline towards teachers' organizations rather than public health nurse organizations. Every nurse belongs to at least one teacher organization but only four are members of the National Organization for Public Health Nursing and sixty-four are members of the California State Organization for Public Health Nursing while fifty-one are members of the State Nurses Association.

Among the nurses employed by the Metropolitan Life Insurance Company in the Los Angeles area, the credentials of fifteen were available. Of this number four were graduated from schools of nursing before 1920; nine have had at least six weeks of postgraduate preparation in public health nursing of whom two had had one college year of postgraduate study. Two of these nurses have been employed by the Metropolitan Life Insurance Company for 17 years and ten have been in its employ since 1935. One nurse is past 50 years of age and the other fourteen are under 40. Only two have indicated that they are members of the National Organization for Public Health Nursing.

Supervision

One of the six supervising staff nurses of the city health department is designated as office supervisor. She functions in the central office as distributing agent between the nursing division and other divisions of the health department, between the central office and the branch offices of the nursing division, and she acts as liaison officer between the nursing division and outside health and welfare agencies; it is unfortunate that the meagerness and vagueness of the information secured from these latter sources often prohibits expeditious, economical, and efficient handling of these cases by the city health department field nurse.

The other five supervising staff nurses function as field supervisors through their respective branch offices and substations and are responsible for the field and clinic nursing services of the sixty-two field nurses, the WPA nurses, and the student nurses assigned to them. The visits of the district supervisory nurse with the field nurse in her district are rather rare because the staff supervisor has a heavy administrative load and a great deal of clerical work and office responsibility; furthermore, when the caseload is too heavy for the field nurses, she must supplement the field nurses' work.

The number of nurses assigned to one supervisor varies from ten to thirteen field nurses, and the number of substations under each supervisor varies from two to four. In addition, each supervising nurse acts as consultant to other supervisors, and to the medical staff, in some assigned special field of public health nursing, such as tuberculosis, child hygiene, etc.

The nursing manual serves as a basic guide for uniform procedures and service; this manual is almost continuously in process of revision to keep it up-to-date.

The new nurse coming to the city health department is introduced to the work by the instructor of student nurses through a planned program extending over a period of two months. Also she teaches the field nurses returning from time to time to the teaching center for a

review of techniques and procedures. A period of practice in the teaching center is also included as part of the review whenever the volume of work in the nurse's own district will permit.

The planned program of education for the health department nurses includes one monthly meeting of the nursing force throughout the year. This meeting is held on the last Monday of the month at 3.30 p.m. The program may consist of a review of nursing techniques with demonstrations, or a talk on some special phase of the health department work by a division chief, or a lecture by an expert on a subject of timely interest to public health workers.

A general staff meeting of the entire health department is held on Saturday morning once a month from 9.30 to 11.00, at which an educational program is presented.

A technical branch of the municipal reference library maintained by the city department of libraries is housed in the health department building and the books of the health department also are kept on file here; hence professional library facilities are readily available to the public health nurses.

In addition to the educational program for their own staff, the nursing division of the city health department carries on a rather extensive student training program. St. Vincent's, Bishop Johnson, and Queen of Angels hospital schools of nursing are affiliated with the health department to provide for a two months' experience in general family health service and in maternity nursing. All of the students thus have some experience in the maternity center clinic, in delivery service, and in bedside care for postpartum cases. Each of the six or eight students from St. Vincent's and Bishop Johnson, who come under the maternity affiliation has one observation of a home delivery at which a fellow student nurse assists and five or six home delivery cases of her own; the students who come under the affiliation for general family service have one observation of a home delivery each and two home delivery cases of their own. The student nurse visits the mother the first six days of the postpartum period, and thereafter on alternate days until the patient is up. The medical attendant at the delivery is a physician who is taking a six months' advanced obstetrical course in the obstetrical department of Los Angeles General Hospital, or a senior medical student accompanied by the postgraduate medical attendant. There is no nurse supervision provided for these students in their home delivery work. But all other phases of their field work are supervised by the nurses in the teaching center or in the districts to which the students are assigned.

Besides these affiliation provisions for undergraduate student nurses, the University of California at Los Angeles has an affiliation with the city health department for graduate students who have had their theoretical instruction in public health nursing; there may be as many as five of these postgraduate students receiving practical experience at one time; their affiliation covers a period of three months during which they have a generalized public health nursing experience in the clinics, in the home and in the parochial schools.

The supervisory staff for the public school nurses in Los Angeles consists of the chief nurse, the assistant chief nurse, and the field

supervisor. The chief nurse is largely responsible for the staff education program. During the school year there is a monthly staff conference of the entire group at which attendance is compulsory. There are also regional group meetings which are planned by the council of school nurses as their own activity, to which the supervisors are invited to attend; there are four such groups of about 25 nurses each. These meetings are held at 3.00 o'clock, once a month and sometimes last until 7.00 o'clock; although attendance is voluntary there is always 100 per cent attendance.

The school health manual sets forth, "The Duties of the Nurse-Inspector." Another school publication, "Communicable Diseases: Quarantine Rules and Regulations," defines the procedure in dealing with various types of illness, as prescribed by both the city health department and the county health department, since the city school district also extends into county territory.

Supervisory field visits are made to the new school nurse every week or oftener if necessary; otherwise they are rather rare, since tenure of office provided for under the state school law, tends to insure a stable staff requiring the minimum of supervisory assistance. The supervisor makes formal evaluation of the staff nurse's work only when there is occasion for citation for notable service or when there is found need for correction. The school nurses have at their disposal the facilities of the Board of Education library; any material requested from the library, including books and films, will be delivered to the specified place upon request.

The public health nursing students who attended the University of California at Los Angeles have a two weeks' affiliation for school nursing experience with the health service section of the Los Angeles City School District. The nurses who take the six weeks' short course in school nursing at the University of Southern California also obtain similar field experience with the school nurses.

There are two supervisors for the thirty nurses employed by the Metropolitan Life Insurance Company in Southern California. One of these supervisors has considerable administrative responsibility in addition to her work as field supervisor. The other supervisor is largely responsible for the educational phases of the program and for field supervision of approximately one-half of the staff. Their staff education program is well planned and regularly conducted. In the spring of 1938, a representative from the Extension Division of the University of California at Los Angeles conducted for this group a series of highly valuable staff education conferences on health teaching.

The supervisor's field visits with the nurse and conferences at headquarters are also regarded as staff educational activities. The plan for supervision calls for a visit with a new nurse once a week during her first month; then once in two weeks during the next few months, and later once a month, until the nurse has served for two years. After the two-year period, the supervisor visits with the field nurse once in two months.

In addition to staff education programs and field supervision, further opportunities are provided by the Metropolitan Life Insurance

Company for their nurses in the way of a traveling library, and leaves of absence for study, sometimes on a scholarship basis.

The policies and procedures of this organization are set forth in a nursing manual which has been prepared by their central New York office.

Expenditures

The total cost for nursing service in the city health department exclusive of WPA workers and clerical help is itemized in their accounts under several headings as follows:

Nurses' salaries	\$143,180.75
Administrative overhead cost.....	10,721.00
Incidental expense, including office rent, supplies, etc.....	7,797.03
Transportation	7,796.38
Salaries of two clerks, and one stenographer.....	3,600.00
Total	\$173,095.16

During the fiscal year ended June 30, 1938, there were an average of thirteen WPA nurses employed at a salary of \$85 for less than full-time work in the four-weeks period. The total salary for these workers was \$14,365. The six WPA clerks during the same period received \$65 for less than full-time work in the four-weeks period, or a total of \$5,070. The grand total for services in the nursing division, including WPA nurses and clerks, was \$192,530.16.

The two nurses who are employed by the tuberculosis association but who carry on their work under the supervision of the city health department, will have received during the year from October 1, 1938, to September 30, 1939, salaries totaling \$3,240 but these are not included in the total expenditures for the fiscal year ended June 30, 1938.

According to the data submitted by the Health Service Section of the Los Angeles City Schools for the school year 1937-1938, the total cost for salaries of eighty-five nurses and one clerk, was \$160,542. The salaries for a varying number of substitute nurses serving for periods equivalent to the services of three full-time nurses for nine and one-half months at \$5 a day, was \$2,850. At the rate of four cents a mile the cost of transportation was \$6,838.28; for printed forms used by the nurses, \$1,000. This gives a grand total of \$171,230.22. But the number of nurses who serve the public school children residing in the city of Los Angeles is estimated at 68, or 80 per cent of the total number of school nurses; on this basis, the total expended for school nursing service for city residents would be \$139,984.17. It is impossible to estimate the expenditure for health service rendered by the nurse-teachers in the schools since the schedule of their salaries has not been made available.

The cost of the Metropolitan Life Insurance Company nursing service for the city of Los Angeles was computed by the Superintendent of Nursing for the Pacific Coast Head Office, as \$41,159.10. This includes salaries, upkeep, miscellaneous expenses and rent, but does not include any proportion of the expense of the insurance program, hospital benefits, social security, or other indirect operating overhead expenses. The salaries of the staff nurses range from \$120

to \$150. The car allowance is continued even during vacation and cash is advanced upon request to assist the nurse in purchasing if needed, a new car after she has been with the organization for six months. Uniforms, as well as two hats a year, are provided by the company.

The cost of the Red Crossing Nursing Service in Los Angeles covers one nurse's salary, a part-time salary for a clerk, \$50 for equipment, and \$110 travel allowance; or a total of \$3,060.

The grand total of all public health nursing expenditures as listed above for the fiscal year ended June 30, 1938, is \$376,733.43 and is recapitulated in the following table:

City Health Department-----	\$173,095.16
WPA -----	19,435.00
Health Service—City Public Schools-----	139,984.17
Metropolitan Life Insurance Company Nursing Service-----	41,159.10
Red Cross Nursing Service-----	3,060.00
Total -----	\$376,733.43

Activities

The activities of the city health department nurses cover home visits, clinics and services to parochial schools. The types of home visits are acute communicable disease, antepartum, delivery and postpartum; child health, tuberculosis, bedside care and general health supervision. The statistical summary of their home visiting activities will be found in the following Table I. The types of clinics at which the nurses assist are child hygiene conferences, maternity, venereal disease and tuberculosis clinics. The statistical report of their clinic services will be found in Table II, following.

One nurse is assigned permanently to the women's venereal disease division as chief nurse and another as chief nurse in the tuberculosis clinic which assignment is rotated every two years. One nurse is assigned to the inspection of boarding schools, day nurseries, hospitals, sanitariums, and children's institutions. The activities of the W. P. A. nurses consist largely of assistance at clinics, and are included with the activities of the regular staff. The student nurse activities include a large proportion of maternity service and are included in the summary presented in Table I.

It will be noted in Table I that no visits are tabulated in the space allotted for syphilis and gonorrhea, but the city health department nurses do make some follow-up visits on venereal disease patients already known to the nursing service; these patients are referred from the women's central venereal disease clinic and the maternity clinic; the nurses also do the field work for the Watts district clinic. Some of these visits are accounted as communicable disease visits (none of which are segregated as to type); some are recorded as prenatal or tuberculosis visits only, according to the primary purpose of the nurse's visit, even though the patient also may have a venereal disease. Only about twenty-five venereal disease a month out of an average total of 104 visits for the women's venereal disease clinic are made by the nurses; the other 79 visits are made by the social workers. According to an analysis made by the nursing division, as of June 1, 1939, the nurses

had in their active files 422 diagnosed cases of syphilis and 368 contacts, and 21 diagnosed cases of gonorrhea and 38 contacts; or a total of 849. The nursing division has no responsibility in connection with the men's venereal disease control division; but Doctor H. M. Elliott, director of that division, says: "It is our belief that the nursing division in particular can be of immeasurable assistance in bringing contacts to the clinics for examination and treatment. In other contagious diseases, this type of service has long been rendered by district nurses, but only to a small measure in the matter of venereal diseases. A few additional nurses would make our task easier and more efficient."^d

The child hygiene division of the city health department does not record a separate grouping of newborn infants and infants under one year of age, but continues close supervision of the child until he is two years of age, through clinic visits and nursing visits in the homes as will be seen from Tables I and II; in recent months, however, visits to the home have been omitted when the mother appears to be able to follow the instructions given at the child health conferences.

TABLE I

Statistical Summary of Home Visits Made by the City Health Department Nurses (Including Students and WPA Nurses) During the Fiscal Year Ended June 30, 1938

Service	Total No. Cases	Total No. Visits	Average No. Visits Per Case	Bedside Care Visits
Noncommunicable diseases-----	3,018	7,803	2.5	-----
Communicable diseases:				
Acute communicable -----	2,648	4,853	1.8	-----
Syphilis and gonorrhea-----	-----	-----	-----	-----
Tuberculosis -----	17,111	43,931	2.5	68 ^a
Maternity:				
Antepartum -----	3,112	7,245	2.3	-----
Delivery (cases only)-----	395 ^b	-----	1.	-----
Postpartum (total)-----	1,272	10,719	8.4	4,591 ^a
Child health:				
Infant (to 2 years)-----	12,338	30,691	2.5	-----
Preschool -----	6,280	11,033	1.7	-----
School -----	1,077	1,746	1.6	-----
Adult -----	-----	-----	---	-----
All other -----	281	821	2.9	7,468 ^c
Totals -----	47,532	118,842	---	12,127

^a Visits for bedside care included in total listed column 2.

^b Home deliveries are attended by students.

^c Visits for bedside care to newborn infants, communicable disease cases and noncommunicable cases, included in corresponding totals in column 2.

TABLE II

**Conferences and Clinics at Which Health Department Nurses Assisted
During Fiscal Year 1937-1938**

Type	Sessions Held	Total No. Cases	Total No. Visits	Average No. of Visits per Case	Total Nurse Hrs. Spent in Clinic Service	Average Nurse Hrs. per Session
Child health---	1,308	14,573	56,295	3.8	a	---
Maternity ----	208	1,947	11,896	6.1	a	---
Tuberculosis --	988	7,501	24,242	3.2	a	---
Venereal disease	551	5,157	40,938	7.9	a	---
Totals----	3,055	29,178	133,371	4.5	34,236.74	11.2

a Breakdown of total clinic hours not available by activity.

The city health department nurses can give a generalized nursing service but the distinct administrative separation of the various divisions in the department which utilize the nursing service tends to isolate cases by types, so that the nurse finds it difficult to see the family as a whole and to render a complete family service. The records in the branch offices are segregated according to types of cases, and there is no family folder. Cases are carried over from the preceding year, instead of being admitted to service in the new year at the time the nursing service is rendered for the first time in that year. All nurses are required to keep a record of time spent in various activities each day. This detailed daily recording is both time-consuming and irksome.

The nurse who is assigned to the inspection of children's institutions and hospitals (with some assistance from one field nurse in the outlying district) made 821 visits during the year ended June 30, 1938, to the 281 institutions under supervision.

There are 14,069 children in the fifty-three Catholic schools and the two Lutheran schools in Los Angeles city. In the 1937-38 school year, nurses made 823 visits to the thirty-nine parochial schools under the supervision of the city health department, and 1,746 visits to the homes of these school children.

The activities of the public school nurses consist of direct service to the children in the school, assistance to the physician at the health examination, classroom inspection for control of contagion, visits to the homes of school children in the interest of communicable disease control or correction of defects, assistance in the clinics maintained for public school children and health talks in the schools. One nurse gives her entire time to administering the Yale Street Clinic; another spends all her time in administering the audiometer test; other school nurses are assigned to the clinic for a total number of hours equivalent to the full-time of four nurses. The nurse-teachers in the high schools give all their time to teaching home hygiene, care of the sick, or first-aid, except for one period a day which is devoted to readmission of students who have been absent on account of illness. Tabulation of the school nurses' activities will be found in the following Tables III and IV. The number of parent consultations with the nurse at school was not available because records of consultations are not broken down statistically as to subject.

TABLE III

Selected Activities of the School Nurses Performed in Behalf of Public School Children Residing in the City of Los Angeles,^c Fiscal Year 1937-1938

Days assisting physician in schools.....	1,706
Days assisting in clinic.....	672
Lectures.....	4,902
Home visits.....	40,308
First aid.....	55,434

^c These figures have been arrived at by taking 80 per cent of the total figures reported by Los Angeles city schools, since 80 per cent of the total school population resides within the city limits.

TABLE IV

Classes in Home Nursing and First Aid, Fiscal Year 1937-1938 ^f

Students	Home Nursing		First Aid	
	Enrollment	American Red Cross Certificates	Enrollment	American Red Cross Certificates
High school students.....	1,216	814	1,004	820

^f The percentage of these students that should be allocated to the city of Los Angeles is not known.

The Seventh Day Adventists maintain their own schools and employ their own physician for part-time health service to the 543 children attending seven schools within the city of Los Angeles. They do not employ a school nurse.

The privately operated nursery schools and day schools are not under the supervision of any official health agency in Los Angeles.

The nurses employed by the Metropolitan Life Insurance Company carry on a program of bedside nursing and instruction in the homes of their beneficiaries. Their activities for the year 1938 are summarized below in Table V. Since this company does not keep their records for city and county segregated, the figures in Table V are based upon pro rata estimates of services rendered beneficiaries residing in the city of Los Angeles.

TABLE V

Statistical Estimate of Field Services Rendered by the Metropolitan Life Insurance Company Nurses in the City of Los Angeles for the Year 1938

Service	No. Cases	No. Visits	No. Visits per Case
Noncommunicable disease	7,756	23,863	3
Communicable diseases:			
Acute communicable	743	2,026	2.7
Syphilis and gonorrhea.....	---	---	---
Tuberculosis	16	73	4.5
Active	---	---	---
Other	---	---	---
Crippled children	---	---	---
Maternity:			
Antepartum	139	278	2
Postpartum	833	7,247	8.7
Postpartum only	471	1,612	3.4
Infant	697	3,111	4.5
Health supervision	41	44	1
Totals	10,696	38,254	3.6

The work of the White Memorial Hospital and its clinics supplements the work of the city health department in the fields of maternity, child hygiene and venereal disease control. Many patients who are ineligible for admission to Maternity Center (Los Angeles County Hospital Out-Patient Department) are referred to White Memorial Hospital for antepartum, delivery and postpartum care. A small fee is charged for those able to pay. During the fiscal year ended June 30, 1938, there were 5,864 visits to the antepartum clinics which are held twice a week and 471 home deliveries attended by physicians, internes, or fourth-year medical students from the College of Medical Evangelists; these figures are a pro rata estimate for the city alone, based upon total number which included one clinic which operates in the county. The nurse assisting at these home deliveries was a graduate nurse, or a postgraduate or undergraduate student. The nurse also visits the patient the day following delivery, and then on alternate days for ten days, or longer if necessary. She may make antepartum visits also if it seems advisable. If the antepartum patient needs antisyphilitic treatment, she may receive her treatment on the day she attends antepartum clinic. Of the 1,027 patients delivered during the year (556 in the hospital and 471 at home), 674 or 65.6 per cent returned for postpartum examination. The clinic examination of every newborn infant is urged; but only those who need treatment or who live in the immediate vicinity are encouraged to continue in the infant clinic up to two years of age; others are referred to the city health department child health conferences. The attendance in the infant clinic for the year was 3,230. Immunization and vaccination are available to all babies attending the clinic. Antisyphilitic treatment is also available for babies needing this treatment.

The activities of the Red Cross nurse consist of organizing, teaching, and supervising public classes in home hygiene and care of the sick; and in 1938 included also twenty-four talks on Red Cross nursing activities to students in five schools of nursing, and to other groups. During the year 1938, 2,593 hours of instruction were given through forty-two classes attended by 1,351 adult students and 305 certificates were issued. Of these forty-two classes, 22 were taught by two assisting nurse-instructors employed by the Adult Education Department of the Los Angeles city schools; 20 were taught by the Red Cross director of nursing and by qualified volunteers.

Adequate Official Public Health Nursing Facilities for Los Angeles

It has been estimated by recognized public health authorities that one official public health nurse to 2,000 population should provide adequate public health nursing facilities under ordinary circumstances for a city; but in some communities where this ratio has been reached, there are still reported many unmet needs. In order to attain the ratio of one nurse to 2,000 population, Los Angeles would need 700 nurses instead of 193. The average population per public health nurse in the five cities represented in Table VI ranges from 1,984 in the smallest city (No. 1) to 4,361 in the largest city (No. 4). In Los Angeles the average population per nurse is 7,368. In order to attain even the average ratio of these five cities (one nurse to 3,127 population), Los Angeles would need to employ a total of 450 public health nurses.

But there are several factors which may point to greater need for public health nurses in Los Angeles than is felt in other cities of comparable populations. In the first place, the average density of population in Los Angeles is only one-fourth as great as that of fourteen cities in the United States that have passed the 500,000 mark. In other words, Los Angeles has an average population density of 3,840 persons per square mile as against an average of 13,730 per square mile for the fourteen other large cities. However, since only 25-33 per cent of the total area of Los Angeles is characterized by an urban type of population density, the average population density of this area is between 11,520 and 15,360 per square mile, or about half the average population density of New York City. This lesser density of population means more extensive area, more miles to be covered and consequently more travel time for each nurse, particularly in the extended sparsely populated outlying districts, than is required where the population is more concentrated. Still another factor that has contributed to increased need of public health nursing services in Los Angeles is the recent and current migration of depression-driven indigent or low income families into the Los Angeles area.

The requests for additional nursing service being constantly made by various division heads of the city health department plainly indicate that more nurses are needed to take care of the present load.

TABLE VI

Number of Public Health Nurses Employed in Five Large Cities Comparable in Population with Los Angeles ^a

City	I	II	III	IV	V	Los Angeles
Population (1930 Census)-----	781,188	900,429	1,568,662	1,950,961	821,960	1,238,048
Estimated population for 1938-----	817,713 ^b	930,839	1,800,000	2,028,000 ^b	866,240	1,489,238
Total number of public health nurses employed, January 1, 1938-----	412	368	594	465	229	193
Number of public health nurses employed by each agency:						
City health department-----	140	108	390 ^c	109	101	73
City board of education-----	66	48	-----	99	44	68
Visiting Nurse Association-----	150	82	120	127	43	-----
Industrial companies-----	45	83	64	80	41	30
Insurance companies-----	4	-----	-----	-----	-----	15
American Red Cross-----	-----	-----	-----	1	-----	1
Tuberculosis Association-----	2	-----	-----	1	-----	2
Other -----	5	47	20	48	-----	4

^a Figures obtained from city, state and federal health agencies.

^b Population estimate for 1935.

^c Health department nurses serve both public and private schools.

The discussion in the preceding section of the nurses' activities in the venereal disease control program makes it clear that their service in that field has been very restricted. But there is a growing demand for their help. The women's venereal disease division is planning to add a night clinic and has requested additional nursing service for that clinic. The desire of this division for three full-time health department nurses to replace the WPA nurses has already been expressed; and, if the nurses are to have greater participation in follow-up and contact-tracing for all venereal disease clinics, the staff must be increased.

Table I shows that 43,931 tuberculosis visits were made by city health department nurses in the fiscal year 1937-1938. An accepted standard recommends thirty visits per death; on that basis, Los Angeles with its 860 deaths for that year, would have needed only 25,800 visits.

But even when the nurses are making fifty-one visits per death, instead of thirty, the tuberculosis division of the city health department is asking for more nursing service. It is pointed out by this division that: (a) the time of at least one additional full-time nurse is needed for the pneumothorax clinic; and (b) the tuberculosis case load has increased 100 per cent in the five years from 1934-1939, whereas the number of nurses has been increased by only six (or 8 per cent). Expert and detailed analysis of the nurses' activities in this field might point the way to more efficient distribution and improved productivity of the nursing service time allocated to tuberculosis work.

Likewise, in the child hygiene division there is demand for increased nursing service, even though 35 per cent of the total visits made by city health department nurses are made to infants and pre-school children. It is impossible to measure the adequacy of this service on the basis of the Standard Appraisal Form of the American Public Health Association, since the "infant" classification in Los Angeles City Health Department includes children under two years of age, and separate records for infants under one year (which are called for in the appraisal form) were not available. The director of the child hygiene division estimates that a 20 per cent increase in nursing service for that division is needed; particularly since the volume of work in the last year alone has increased 16 per cent. One nurse at each of the child hygiene clinics should be free to give final instruction to each mother before she leaves the conference. The present number of nurses is insufficient to permit such instruction.

In examining Table VI, it is found that all the other five cities have visiting nurse associations, and that the number of nurses employed by these agencies varies from 43 to 150. The percentage of visiting nurse association nurses in relation to the total number of public health nurses employed in these cities varies from 19 per cent to 36 per cent; the average is 25 per cent. The study of nursing in Los Angeles, made by the nursing section, Health Division of the Council of Social Agencies of Los Angeles, and published in May, 1937, contains some pertinent paragraphs on the need of increased nursing service for the sick in their homes. The following quotations are taken from pages 20-23 of that study:

"It is evident that * * * very little bedside nursing service is given in Los Angeles. Studies made in other cities show that on an average one-third of the nursing visits are for bedside care. This lack of home nursing service in Los Angeles is probably the greatest gap in the community nursing program. In most communities, nursing service is available to all, irrespective of economic or social status.

Statistics for Los Angeles and the country at large show increasing numbers of cases of heart disease, cancer, nephritis, and other disabling diseases which often require long periods of bed * * * care * * *. The public health nurse might contribute a great deal to the general comfort and well-being of patients thus afflicted. If such a service were available, some of the expensive institutional care for chronic cases might be unnecessary.

The public health nurse also plays an important role in convalescent care. Patients can often be discharged from the hospital several days earlier if the physician knows that adequate nursing supervision can be provided in the home.

The Metropolitan Life Insurance Company has found that it pays in dollars and cents to provide a good nursing program for its policyholders. Might not communities have the same experience?"

Doctor Hiscock in *Community Health Organization* (1938 edition, pp. 180-181) says on this subject:

"It is necessary to supplement the service for specific preventive tasks by service for care of the sick. According to various morbidity studies, from 2 per cent to 4 per cent of the population have been found to be ill or incapacitated at any given time. The burden of illness is heaviest among those families who are experiencing problems related to social dependence * * *. But many in the higher economic brackets utilize this service also.

It seems fair to assume that under a proper administrative plan at least 15 per cent of the gross cost (of public health nursing) can be collected from patients and insured groups. Some visiting nurse associations report that they are able to collect fees to cover 30 to 50 per cent of the gross cost of service.

If we assume that 15 per cent of the gross cost will be collected in fees, the total cost of the public health nursing bureau will be about 80 to 88 cents per capita, an allotment none too high to maintain a service adequate for modern requirement. The size of the budget would depend somewhat upon the community, because of the variation in the cost of living in different communities and also because it may be necessary to pay higher salaries in order to retain the right type of nurse in communities where living and social conditions are undesirable."

In order that more nursing hours may be released for public health nursing service, one clerk each should be employed in the district health offices at Watts, San Fernando, Venice and Van Nuys; one clerk should be assigned to the Avalon branch office, and one employed to divide her time between the West Vernon and Hollywood offices. At the central office, the services of an additional junior stenographer are needed, and also a statistical clerk.

In relation to the proportion which public health nurses should bear toward the total public health personnel employed in a community and in relation to the cost, Doctor Smillie says:

"In any well organized modern local health department, one-half the personnel and nearly one-half the total expenditures are devoted to the public health nursing service." *

Other authorities estimate the cost of public health nursing in proportion to the total health budget at percentages varying from 30 per cent to 45 per cent. Several estimate that the per capita cost for public health nursing should vary from 80 to 87 cents.

Summary and Conclusions

The city health department nurses are spending a large share of their time in maternity and child hygiene service, including home visits and clinic work, and upon tuberculosis, and yet even in these fields there are demands for additional nursing service. A relatively small share of their time is spent in the acute communicable diseases and the venereal diseases, and another small share in the parochial schools. The visits to communicable diseases other than tuberculosis are not segregated; therefore, it is impossible to estimate the adequacy of the service for specific communicable diseases.

At best, a staff of seventy-three nurses would be inadequate to meet the many problems arising in connection with a complete family service for a population of 1,489,238. But where there is almost a total lack of clerical assistance in the branch offices, many nursing hours

* Smillie, Wilson G., "Public Health Administration in the United States." Macmillan, 1936.

that might be available for professional services in the homes or in the clinics, are being consumed in clerical and office duties; clerical tasks should, in the interest of economy and efficiency, be assigned to clerical workers. It is estimated that four full-time clerks are needed in the four urban branch offices, and five part-time clerks in the five suburban branch offices.

Another time-consuming requirement that might be eliminated from the nurses' duties is the detailed recording of time spent by each nurse on each activity every day. Most public health nursing agencies have discontinued this practice as of doubtful value, in view of the time and energy required for such recording which would be more productive in terms of accomplishment.

The present method of writing and filing the nursing case records, according to type of case or service, apparently tends toward stressing and segregating cases by types, instead of promoting and facilitating a complete family health service. The practice of writing all nursing records in the home at the time of the visit would, no doubt, tend to increase the accuracy of the record and conserve the nurse's time.

With all the distracting and diverting influences that cut down the nurses' actual productive service time, it is surprising that they do accomplish such a large volume of work. But, as a matter of fact, this group of nurses is reaching only about five and one-half per cent of the total population, whereas about one-third of the population would apparently be eligible for service from the health department, particularly since there is no visiting nurse association in Los Angeles to provide bedside nursing care for the sick in their homes. A study of the possible need of a visiting nurse association for the city of Los Angeles is now in progress.

The service of the Metropolitan Life Insurance Company nurses is necessarily restricted to policyholder beneficiaries. Other persons in the moderate income group do not have access to home nursing service. To all of those who are able to pay the full cost of hourly nursing service in their homes (\$1.25 an hour), only the limited time of two nurses is now available.

The 68 school nurses working in the city portion of the Los Angeles School District serve the public school population of 250,344 children in the city, ranging in age from five to eighteen years.

There seems to be some indication that there is unintentional overlapping of nursing service on the part of school nurses and the city health department nurses, particularly in the field of communicable disease control. The school nurse is expected to visit a child who is absent from school for three days on account of any kind of illness; such visits are made immediately upon receipt of the report in the case of "major contagion." The city health department nurse also is expected to visit certain communicable disease cases as soon as they are reported, in order to assist the family in establishing isolation and thus prevent the spread of the disease to other susceptible members of the family or persons in the neighborhood. A working agreement between these two groups of nurses should obviate unnecessary overlapping in such homes.

The city health department is charged with the responsibility of inspecting hospitals, sanatoria, day nurseries and boarding schools,

and one nurse is assigned to this duty. But no mandatory health supervision or inspection service is required or available to the private day schools or to the numerous private nursery schools in Los Angeles City. If the health department is called upon to assume this additional responsibility, the nursing staff would need to be increased accordingly.

It is evident on every hand that if the people of Los Angeles are to receive adequate public health nursing service, more nurses will have to be employed. "Authorities agree that the sooner properly qualified public health nurses in adequate numbers are employed in the modern public health program, the faster will come public understanding and application of scientific methods to maintain health and control disease in our daily life."^{*}

Recommendations Regarding Public Health Nursing in Los Angeles

It is recommended:

1. That the city health department budget for public health nursing be increased to provide for the permanent employment of qualified full-time public health nurses to replace personnel assigned to the nursing division on a temporary basis from federal and state funds and that further provision be made to augment public health nursing force to keep pace with the increasing demands for needed service.

2. That adequate clerical assistance be provided for the branch offices as well as the central office, in order that the work of the nurses may be facilitated and the more costly public health nursing time may thus be conserved for professional service.

3. That the various divisions of the city health department which make use of public health nursing services (such as the quarantine division, the tuberculosis division, maternity center, et cetera) cooperate with the public health nursing agencies of the city in developing a plan for furnishing to the field nurse adequate, pertinent and specific data regarding each case to enable her to make a really effective field visit.

4. That a joint study be undertaken by the public health nursing agencies of the city to determine the extent of and to recommend measures to avoid duplication of visits in communicable disease nursing service, particularly in relation to school children in the home.

5. That provision be made to coordinate the epidemiological investigation and follow-up work of the health department for all the venereal disease treatment sources under the immediate supervision of a consultant public health nurse who has had special training in venereal disease control activities. This nurse should be responsible to the director of the nursing division who would assign her to the venereal disease division and to the director of the venereal disease division who would direct her duties relating to venereal disease control.

6. That field visits in the interest of venereal disease control be recognized as an essential part of the generalized nursing service, and that the primary responsibility for such visits be assigned to the district nurses.

^{*} Dorothy Deming, R.N. "The Function of the Public Health Nurse." *Public Health Nursing*, April, 1937, page 247.

7. That the following changes be made in relation to nursing records:

- (a) That the family folder be introduced as a further aid to the generalized nurse in rendering a complete family service.
- (b) That a case be admitted to nursing service at the time of the nurse's first visit after the beginning of the new fiscal year, and that such admissions to service constitute the basis for the case count for the year.
- (c) That in recording field nursing visits to communicable disease cases, the disease be specified in each instance, so that statistical summaries for specific diseases may be made.
- (d) That in the interest of accuracy and economy of time, the practice of writing the record in the home at the time of the visit be generally adopted.
- (e) That the practice of detailed recording of nurses' time spent in various activities be discontinued except when a time study for a brief period for a specific purpose may be indicated.

TUBERCULOSIS CONTROL

By MEDICAL DIRECTOR F. A. CARMELIA and P. A. SURGEON F. W. KRATZ,
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The control of tuberculosis in the city of Los Angeles is rather complicated; in general the city health department administers epidemiological investigations, case finding activities other than in school age groups, clinical out-patient treatment of ambulant cases; all public hospitalization is administered by the Los Angeles Department of Charities; case finding activities in the public school age groups are administered by the health section of the Los Angeles School District Department, stimulated and assisted by the Los Angeles Tuberculosis Association; both the city health department and the Los Angeles Tuberculosis Association promote public health education in tuberculosis. In many respects the program as a whole is pretty well integrated under the circumstances and good cooperation obtains between these various agencies, and yet this is all susceptible of needed improvement in certain respects which will be developed as this discussion proceeds.

The city health department maintains its division of tuberculosis as a distinct departmental unit. The director is a full-time physician who is a very well trained and experienced tuberculosis specialist, who is designated as an assistant health officer. He spends all of his time in the work of the division and has two full-time assistant health officers on his regular staff. The staff is supplemented by three part-time physicians and four part-time conference physicians. The other personnel consist of one senior stenographer, two junior stenographers and one junior clerk, who spend all of their time in the work of the division. The public health nursing division of the city health department furnishes all nursing services to the tuberculosis division both in the central and the health district clinics and in the case-finding and case follow-up field work.

The director of the division selects his own medical personnel and insists that each member of the staff be exceptionally skilled in tuberculosis as a clinical specialty.

The full-time physicians conducting the tuberculosis clinics at the central office or at district clinics are well trained in tuberculosis clinical case-finding by careful physical examinations, fluoroscopic, X-ray film interpretation and laboratory aid. At the central clinic each physician takes turns at operating the fluoroscope. Consultation and advice is made freely available by the director of the division and between the staff members. The part-time personnel are employed for clinic sessions only and are well trained and experienced in diagnosis, treatment and clinical case-finding procedures.

Clinic Procedures

More than 82 per cent of the clinical aspect of tuberculosis control is done at the central clinic for which the entire tenth floor of the city

health department building is reserved. Diagnostic standards as published by the National Tuberculosis Association are followed in diagnostic terminology, which is descriptive as to lesions caused by infection with tuberculosis bacilli from the standpoint of location, type, extent or stage of infection, distribution of lesions, character, dynamic status, pathogenic phase, prognosis, and result of treatment or observation.

All clinic admission cases are first seen by the clinic nurses. The nurse weighs the new patient, takes the temperature and pulse rate, and records both the social service and tuberculosis case histories on special record forms. Cases are then either directed to the clinic physicians for physical examination and X-ray on the first visit, or given appointments for later clinic sessions, depending upon the day's clinic case load.

If a case is diagnosed as negative for tuberculosis, it is discharged or it may be referred to the Los Angeles County General Hospital clinics if some other condition is suspected. If positive for tuberculosis, after each examination or reexamination, the clinic physician fills out a special case report form which carries a case number and also definite instructions for the district visiting nurse, including the appointment time and date for return to the clinic. This form is sent by the chief nurse at the central clinic to the nursing division and in turn referred to the district nurse nearest the patient's residence for home visitation. The cases are instructed by the clinic physician to return to the clinic for reexamination at regular intervals and it is the function of the visiting district nurses to see that the patient returns on the date specified and to give instructions regarding home care.

The nursing division does the follow-up home visitation, case-finding (urging all family or household contacts to be examined), and keeps a careful check on whether the case has moved out of her district or out of the city limits; the city and county health departments cooperate in notifying one another whenever a case moves from one jurisdiction to another.

Adequate time is taken for a thorough chest examination for each case in six separate examining rooms for each physician. More time is given for initial cases than to reexaminations. All first visits of suspects are X-rayed and given fluoroscopic examinations. Fluoroscopic examinations are given routinely also on reexaminations and refills. Interesting, difficult or unusual cases are discussed and demonstrated for advice and consultation to the entire medical staff. This procedure promotes increased knowledge and interest in the specialty of tuberculosis diagnosis, prognosis and treatment.

The division, by "in-service training," has an X-ray technician who spends all of his time with the division, taking flat X-ray films or stereos. The interpretation of these films is done chiefly by the director of the division or at times, delegated to some member of the staff. In 1937, the tuberculosis division procured a modern X-ray and a fluoroscope. This has been of great value to the clinic since they utilize this equipment to assist them in making their own diagnosis, as well as being a time-saver. In previous years all cases that required either diagnostic or prognostic study had to be sent to the Los Angeles County General Hospital. An aid to advisable further decentralization

will be the purchase of two new fluoroscopes which will be installed in Watts and at the Venice health districts. The old fluoroscope that had been installed at the central clinic was sent to the Van Nuys district after the new equipment including X-ray photography was purchased and installed at the central clinic.

The pneumothorax collapse therapy for ambulant cases is done at the central clinic. A total of 15 cases were initiated during the fiscal year 1938 and 248 cases were given post sanatorium follow-up refills. The 263 individuals made a total of 6,018 visits to the clinic for pneumothorax therapy. These refills are given to each patient at regular intervals and the nursing division is notified so that the patient is visited if necessary in order to insure the patient's return to the clinic session in accordance with the instructions of the attending clinic physician.

The clinic service rendered in the tuberculosis division is excellent. The post sanatoria collapse therapy refills (pneumothorax), as well as the initiated collapse therapy is carried out along present day scientific procedures. It is surprising to note how quickly and skillfully the huge case load is treated on pneumothorax day. The collapse therapy is done only at the central clinic under the direct supervision of the director of the division.

Specimens of sputum requiring diagnosis for tuberculosis are collected by the city health department from 23 collection stations strategically scattered over the city. The city health department laboratory does all of the laboratory work for both diagnosis and prognosis for clinic cases as well as for private physicians' cases. During the fiscal year 1938, a total of 5,534 specimens were examined for tuberculosis of which 549 were positive and 4,985 were negative.

Even though the examining rooms for the tuberculosis division are on the tenth floor at the city health department building, it is difficult to exclude the noise of street traffic. It would appear that some more quiet location or locations would be more suitable for adequate chest examinations by percussion and auscultation. Decentralization of clinic facilities would break up the clinic load in the central clinic where at present overcrowded quarters, because of inadequate and unsuitable space, now exists. This should be borne in mind when new quarters for the city health department are discussed in the near future in connection with the vacation and demolition of their present building.

Branch clinics are conducted by the medical staff of the division and now are located in eight districts of the city. The following table shows the number of places where clinics are held, time conducted and the personnel at each clinic session.

Weekly Clinic Sessions and Personnel

	Monday	Tuesday	Wednesday	Thursday	Friday
Central Clinic Tenth Floor	8 a.m. Open clinic 3 Asst. H. O. 2 Physicians 1 Conf. Phys. 5 Clerical 3 Nurses	Appointments only. Adults and children 3 Asst. H. O. 1 Physician 5 Clerical 1 Nurse	7:30 a.m. Pneumothorax Clinic 2 Asst. H. O. 2 Physicians 1 Conf. Phys. 5 Clerical 6 Nurses	8 a.m. Open Clinic Adults 3 Asst. H. O. 2 Physicians 5 Clerical 5 Nurses	8 a.m. Adults and Children 9 a.m. X-rays 3 Asst. H. O. 1 Physician 1 Conf. Phys. 5 Clerical 1 Nurse
Central Clinic Tenth Floor	Afternoon by appointment Adults and Children 3 Asst. H. O. 4 Clerical 1 Nurse	4:30 p.m. Open Clinic 2 Asst. H. O. 1 Physician 2 Conf. Phys. 3 Clerical 7 Nurses	1 p.m. Children only 3 Asst. H. O. 1 Physician 3 Conf. Phys. 4 Clerical 6 Nurses	4:30 p.m. Open clinic 2 Asst. H. O. 4 Clerical 1 Nurse	4:30 p.m. Open Clinic 3 Asst. H. O. 1 Physician 2 Conf. Phys. 4 Clerical 5 Nurses
Branch Clinics	Canoga Park By appointment only	Venice 8:30 a.m. 1 Conf. Phys. 1 Nurse	Watts 8 a.m. 1 Asst. H. O. 1 Dist. Nurse San Pedro 9 a.m. 1 Physician 1 Nurse	Pacoima 8 a.m. 1 Physician 1 Nurse	Watts 8:30 a.m. 1 Asst. H. O. 1 Nurse
		West Los Angeles 1:30 p.m. 1 Conf. Phys. 1 Nurse	Wilmington 1 p.m. 1 Physician 1 Nurse	Van Nuys 1 p.m. 1 Physician 1 Nurse	Tujunga 1 p.m. 1 Physician 1 Nurse

These branch clinics are held in the offices, or the branch offices of the districts. The clinic attendance in the branch clinics, located in eight population islands, remote from the central clinic is maintained by the district clinic nurse. A clinic physician and the district nurse conduct the clinic at regular stated weekly or twice weekly intervals.

The clinics carry on a clinical case-finding program. The Van Nuys clinic has been the only branch clinic equipped with a fluoroscope but such equipment is now being procured for the clinics at Watts and Venice. The majority of district clinic cases requiring X-ray work are referred either to a private physician for which contracts have been made by the county department of charities, or to the central clinic of the city health department. If a case is referred to a private contract physician, he is charged in accordance to his ability to pay and the amount charged varies for flat or stereo films as well as for fluoroscopic examinations; if the patient is absolutely unable to pay, then the contract price is paid by the county department of charities.

The following table summarizes the activities of the central and branch tuberculosis clinics of the city health department for the fiscal year ended June 30, 1938:

Tabulation of Clinic Activities by Clinics for the Fiscal Year 1939

	Central Clinic	Pacifica	San Pedro	Tulunga	Van Nuys	Venice	Watts	West Los Angeles	Wilmington	Total
Number of clinic sessions.....	504	47	53	47	57	49	131	49	50	987
Total attendance.....	19,902	430	473	376	524	588	1,072	438	392	24,195
Number of first examination.....	5,056	132	140	104	190	145	289	101	150	6,305
Number of reexaminations.....	6,890	196	275	210	228	203	620	201	215	9,038
Non-tuberculous.....	3,828	88	97	53	135	90	240	96	111	4,743
Minimal involvement active cases.....	22	1	2	0	1	3	1	0	0	30
Moderately advanced active cases.....	155	1	6	1	3	3	6	1	0	176
Far advanced active cases.....	246	9	2	13	10	6	10	0	2	298
Active cases childhood type.....	32	0	2	1	1	5	3	1	1	46
Total new active cases.....	455	11	12	15	15	17	20	2	3	550
Number of old active cases brought forward from 1937.....	627	14	18	20	28	8	46	9	21	791
Pulmonary tuberculosis, inactive.....	276	9	2	11	1	10	8	6	4	327
Childhood type, inactive.....	62	0	4	4	3	6	16	8	3	106
Total new inactive cases.....	338	9	6	15	4	16	24	14	7	433
Grand total—all cases.....	1,420	34	36	50	47	41	90	25	31	1,774

Epidemiological Investigations

Epidemiological investigations in tuberculosis are made by the nursing division of the city health department. One nurse is assigned to a two year rotating service in the central tuberculosis clinic in supervision of the clinic and district nurses' epidemiological activities. Upon completion of two years in the central clinic she is then replaced by another nurse, thus making a rotating full-time nursing service for the clinic. The nursing division makes copies of tuberculosis case reports and reports of death from tuberculosis which is procured from the quarantine and morbidity division. Cases and deaths reported are visited by the field nurses and attempts are made to have the case seek the care of a private physician or, if eligible and unable to pay, to come to the clinic for further case study, treatment or hospitalization as indicated. When possible, case histories are filled in at the time of the nurse's home visit. Contacts of active cases and contacts of persons who have died from the disease are urged to seek medical examination and advice from their own private physician or from the tuberculosis clinics of the city health department.

It was reported that all deaths from tuberculosis occurring at home are followed within seven days after the death certificate is filed with the city health department. The field nurse calls upon such a home and instructs the responsible members of the family on terminal disinfection. At this time she advises the family and household contacts to visit their physician or the tuberculosis clinic for medical examination. It was also stated that new cases reported are visited within one month of the report, but recorded evidence was not available that such is the case.

Prior to discharge of cases of tuberculosis from Olive View Sanatorium or the Olive View Outside Sanatoria, the source of case

referrals is notified. In this case, the Los Angeles City Health Department is notified through the director of the tuberculosis division when a case originating from and returning to the city of Los Angeles is to be discharged. The director of the division notifies the nursing division about the case and the field nurse in the residence district concerned is directed to visit the home and make out a report stating whether or not the home environment is favorable for return of the case. This information is turned over to the Olive View Sanatorium for their guidance in the discharge of the patient. Recorded evidence was not found in the city health department regarding the number of visits made by the nursing service to cases discharged from the sanatoria within one month following discharge.

All cases discharged from the Olive View Sanatoria are directed to report to the place of referral for post-sanatorium clinic care. The city health department furnishes all follow-up post-sanatorium clinic care to tuberculosis cases returned to their homes located within the city limits of Los Angeles.

Registered with the nursing division are 1316 active cases of tuberculosis in homes and 15,024 other cases inclusive of suspects, contacts and arrested post-sanatorium cases, et cetera. A total of 41,576 nursing home visits were made during the fiscal year 1938 to all of these cases in the interest of tuberculosis control. Apparently the number of nursing visits made in the interest of tuberculosis control far exceeds the minimum generally accepted standard of 30 visits per death in the interest of tuberculosis control; the apparent performance was 48 visits per death. Then again, the standard is 12 visits per active case carried, and the apparent performance was 31 visits per active case carried.

The total number of visits apparently made in the interest of tuberculosis control by the nursing division to active cases, suspects, contacts or any other visit made to the family, appears to be excessive and suggests over-emphasis of tuberculosis as part of a balanced program. However, a study of the records shows that all types of nursing visits, inclusive of those made in the interest of tuberculosis control, are recorded on the tuberculosis family record form. Visits in the interest of child hygiene, acute communicable disease, prenatal and post-natal visits or any other service, are all charged to tuberculosis control, if a case of tuberculosis is found in the family. The family is treated as a unit, and so if tuberculosis is present, all subsequent nursing service irrespective of the type, is credited to tuberculosis control, being recorded on the family tuberculosis record. For this reason the number of nursing visits in the interest of tuberculosis control is overloaded and the nursing service data for some of the other services may prove to be light and there is danger of duplication of recording of services rendered, according to the various types of service.

In the city of Los Angeles 2,302 new cases were reported to the city health department during 1938. During the same period the nursing division carried a total of 1,316 (new and old) active cases in homes on its tuberculosis register, and record a total of 2,981 contacts of 2,302 new cases as having been medically examined. This made a ratio of 1.3 contacts examined to 1 new case reported. Standards of

good case-finding performance are at least 3 examinations of contacts per new active case reported or 6,906 medical examinations of contacts. The register also carried 15,924 other cases—tuberculosis contacts, suspects, post-sanatorium cases and so on, but these are not numerically segregated.

As shown in a preceding table, the tuberculosis division records for 1938 show in contrast a total of 791 active cases carried forward from 1937 and that a total of 550 new active cases and 433 inactive cases were found in 1938, making its register of new cases and old active cases 1,341 and 433 new inactive cases.

The generally accepted basis for estimating the probable total number of cases in a community of average population stability in the United States is five times the annual number of deaths; in 1938, 860 deaths were reported in Los Angeles—proper correction for residence (net change—1.6 per cent) would probably reduce this to 845—and times five would give 4,225 probable cases, against which figure 2,302 cases were found and reported, or about 55 per cent of the probable total number of existing cases. If the contact examinations reached the generally accepted standard of 3 per new case, or 6,906 for 1938 instead of the 2,981 actually made, it would without doubt uncover many additional cases, especially in view of the lack of an adequate case-finding program in the high school age group. Of the probable existence of the 2,302 new cases of tuberculosis reported in 1938, 550 were reported from the city health department clinics, leaving 1,752 as reported by practicing physicians and others.

A total of 2,302 new cases would indicate an attack rate of 162 per hundred thousand of population in 1938 during which period 860 deaths occurred. This attack rate is not to be considered as a reliable index under existing circumstances; about 35 per cent of the new cases were far advanced indicating existence for two or more years and another 35 per cent of the new cases reported were not classified as to stage. Of the 65 per cent that were classified, 11 per cent were minimal and 29 per cent were moderately advanced while 56 per cent were far advanced and 5 per cent were childhood type. If it be assumed that similar percentages obtained for the total number of cases reported, 61 per cent (advanced and childhood types) plus one-half the moderately advanced or 14 per cent, or a total of 75 per cent might be reasonably considered to have existed for more than one year, leaving 25 per cent found and reported in the first year following attack.

But all attempts at estimating the attack rate in Los Angeles on the basis of existing data are un dependable; in the first place, the population of the city of Los Angeles is less stable than most other cities in that there are a large number of tourists and other transients and the case reports while analyzed as to stage of disease are not also analyzed as to length of residence in the city. If the generally accepted rule that reported deaths times two will give the probable number of active cases existing, is applied to Los Angeles, 860 deaths in 1938 (adjusted to 845 resident deaths) represents 1,690 probable active cases whereas, 2,302 were reported, which difference might be assumed to constitute some indication of the active case incidence in the transient group.

It is felt that, owing to the extraordinary circumstances as regards population characteristics in the city of Los Angeles, neither the generally accepted standards of public health performance nor the formulae for computation of probable conditions can be applied to existing data with the dependable results usually experienced in the average community in the United States. The conditions in the city of Los Angeles require special and continuous study and analysis of the various statistical data that should be currently maintained in order that any dependable ideas or conclusions may be attained and, of all city departments the city health department especially needs a superior statistical office for its guidance.

Reporting

The complete reporting of cases and deaths of tuberculosis is the real index of the tuberculosis prevalence problem in any area to be studied. The number of reported cases of tuberculosis in the city of Los Angeles increased with the rapid population growth during the past fifty years.

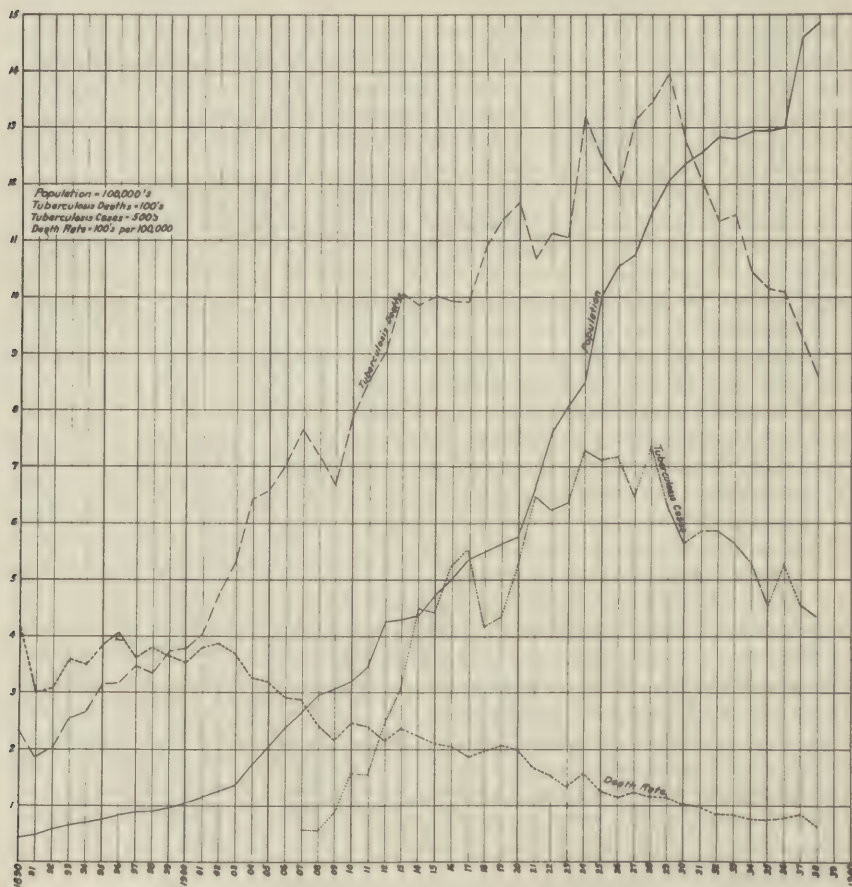


Chart comparing trends in population, cases, deaths and death rates from tuberculosis in the City of Los Angeles

The Los Angeles City Health Department has kept records of tuberculosis case reporting since the vital statistics registration law of California was enacted in 1905 and reporting of cases of tuberculosis by physicians to the health officer was required under a state law passed in 1907. It is noticeable in the following table that reporting has gradually improved. The numerical peak of case reporting occurred in 1928 when the largest number of cases was reported, since which year there has been a gradual decline in case reporting which accompanied a similar decline in the number of deaths reported. This decline of cases and deaths may be attributed to improved public health methods of tuberculosis control, such as better and earlier diagnosis and treatment and the larger number of sanatoria beds available.

Year	Cases Reported (Crude)	Deaths Reported (Crude)	Ratio Cases to Deaths	Year	Cases Reported (Crude)	Deaths Reported (Crude)	Ratio Cases to Deaths
1905	-----	657	---	1922	3,108	1,114	2.7
1906	-----	704	---	1923	3,181	1,104	2.8
1907	291	769	0.4	1924	3,637	1,314	2.0
1908	276	719	0.4	1925	3,553	1,241	2.8
1909	449	666	0.67	1926	3,585	1,195	3.0
1910	781	790	0.9	1927	3,219	1,315	2.5
1911	724	854	0.84	1928	3,680	1,349	2.7
1912	1,228	906	1.35	1929	3,154	1,395	2.2
1913	1,529	1,012	1.5	1930	2,816	1,273	2.2
1914	2,294	987	2.3	1931	2,928	1,201	2.4
1915	2,257	1,000	2.25	1932	2,936	1,137	2.5
1916	2,610	999	2.6	1933	2,826	1,145	2.4
1917	2,760	991	2.7	1934	2,654	1,043	2.5
1918	2,078	1,089	1.9	1935	2,269	1,020	2.2
1919	2,165	1,139	1.9	1936	2,641	1,010	2.6
1920	2,637	1,167	2.2	1937	2,381	1,128	2.1
1921	3,242	1,065	3.0	1938	2,173	860	2.3

Generally accepted standard is 5 cases reported per death; because of population characteristics in Los Angeles 4 is probably more applicable in this city.

In comparing the total number of cases reported during the past three years in the annual reports of the city health department with an actual count of the transcripts made of tuberculosis morbidity cards sent in to the State Department of Public Health from the city health department, the following is found:

Year (Fiscal)	Los Angeles City Health Department Annual Report—Tuberculosis Morbidity		Count of Morbidity Transcripts in the Files of City Health Department	
	Crude		Res.	Non-Res.
1936	2,641	2,391	1,934	257
1937	2,381	2,421	2,191	229
1938	2,173	2,302	2,158	143

The reporting of cases of tuberculosis in the city of Los Angeles betters the accepted standard for reporting—two new cases reported annually per death for the annual average number of deaths for the last three years. A total of 2,302 cases were reported during the fiscal year 1938, and the average number of deaths reported for the last three years was 999, or a ratio of 2.3 cases per triennial average death.

The city health department does not keep a registry of known living cases of tuberculosis. Such a tuberculosis registry would be of great value if kept current; new cases reported and transfers of cases

into the city from Los Angeles County or other counties or states should be added to the registry and cases that have died, moved from the city or which have been reported clinically recovered from tuberculosis should be removed from the register. Unless a register of all cases reported be kept by name and address, it is difficult to avoid duplication of reporting.

	1936		1937		1938	
	Cases	Per Cent	Cases	Per Cent	Cases	Per Cent
Private physicians -----	909	38.0	908	37.5	728	31.6
Los Angeles City Health Department -----	688	28.8	609	25.1	640	27.8
Los Angeles County General Hospital -----	626	26.2	712	29.4	713	31.0
Olive View Tuberculosis Sanatorium -----	30	1.3	84	3.4	74	3.2
Other agencies -----	81	3.4	36	1.5	100	4.3
Not stated -----	1	---	19	0.8	4	0.2
Coroner's office -----	56	2.3	53	2.3	43	1.9
Total -----	2,391	100.0	2,421	100.0	2,302	100.0

The reporting of cases of tuberculosis by private physicians has shown a slight decrease during the three years studied, and reporting by the Los Angeles County General Hospital is on the increase, based upon the per cent of total number of cases reported. The reporting by the tuberculosis clinics of the city health department has not been changed to a very noticeable amount, the average being about 27 per cent of the total.

Tuberculosis Case Reporting by Stage of the Disease 1936, 1937 and 1938

Stage	1936		1937		1938	
	Cases	Per Cent	Cases	Per Cent	Cases	Per Cent
Minimal -----	27	1.1	61	2.5	154	6.7
Moderately advanced -----	6	0.3	134	5.5	407	17.7
Far advanced -----	17	0.7	197	8.1	788	34.2
Childhood type -----	1	---	35	1.5	70	3.0
Other types (exclusive of pulmonary) -----	176	7.3	77	3.2	85	3.7
Unclassified -----	2,164	90.6	1,917	79.2	798	34.7
Total -----	2,391	100.0	2,421	100.0	2,302	100.0

It will be noted that, as shown in the above table, there has been a definite improvement in reporting of tuberculosis cases by degree of pulmonary involvement. During the three years studied, there has been a marked decrease in unclassified reporting and an increase in the number of cases reported by stage of infection. This does not mean that more minimal cases have been found but that more minimal cases have been reported as such. The ratio of cases of classified pulmonary tuberculosis amounting to 65.3 per cent of the total reported during the fiscal year 1938 was as to the stage of the disease:

Minimal -----	11%
Moderately advanced -----	29%
Far advanced -----	56%
Childhood -----	5%

The following table shows tuberculosis case reporting in the city of Los Angeles for the three years 1936-1938, segregated by race:

	All	White	Negro	Mexican	Oriental	Not Stated
1936 -----	2,391	1,688	175	399	90	39
Rate -----	184.0	149.6	437.5	395.0	300.0	---
1937 -----	2,421	1,712	162	345	87	115
Rate -----	182.4	148.8	395.1	344.6	256.6	---
1938 -----	2,302	1,586	157	352	90	117
Rate -----	161.8	128.6	356.8	316.2	272.4	---

The rates in the above table are per hundred thousand of the population group. It will be noted that all showed a progressive decrease in each of the three years for all groups, except the oriental in 1938. The attack rate was highest in the negro population group, the next in order, in the Mexican and oriental population groups and lowest in the white population group.

Deaths from tuberculosis in the city of Los Angeles have shown a steady decrease during the past fifty years. The highest death rate per 100,000 population was in 1890 which amounted to 417.2. The decrease has been gradual throughout the ensuing years until in 1938 the death rate reached an all-time low of 60.4. The following table compares the tuberculosis death rates since 1920 at 5-year intervals for the city of Los Angeles with the rates for the State of California and the United States Registration Area:

Year	Los Angeles City	State of California	U. S. Registration Area
1920 -----	200.6	152.6	114.0
1925 -----	122.3	127.3	86.7
1930 -----	102.8	98.2	71.5
1935 -----	75.4	72.0	55.0
1938 -----	60.4	65.4	46.1

The following table compares the tuberculosis death rates at five-year intervals according to the records of the city health department and the State Department of Public Health for the years 1910-1938:

Year	Rates Compiled by the City Health Department	Rates Compiled by the State Department of Public Health
1910 -----	247.4	256.8
1915 -----	210.3	220.8
1920 -----	200.6	174.6
1925 -----	122.3	129.7
1930 -----	102.8	104.0
1935 -----	75.4	70.0
1938 -----	60.4	56.5

In seeking the explanation for the discrepancy noted in the rates in the foregoing table, it was found the two departments do not use the same formula for estimating population for interdecennial census years; it would seem that for the decennial census years, the data computed on the basis of the estimated population before the actual census figure becomes available, is not corrected by the city health department when the figure does become available. The two departments also do not use the same rules for allocating cases according to the place of usual residence. Furthermore residents of the city dying

outside of the city are more or less disregarded by the city health department although adjustment is made for nonresidents dying within the city. It has been already mentioned that the records of the number of cases of tuberculosis in the files of the city health department did not check with the data published in the annual reports.

The following table compares the crude death rate and the adjusted death rate for the city of Los Angeles with the death rate for the State of California, for the fiscal years 1932 to 1938, inclusive:

Year	Total No. of Deaths	Crude Death Rates	Resident Deaths	Non-Resident Deaths	Adjusted Death Rates	Adjusted Death Rates for State of California
1932 -----	1,137	88.8	912	225	71.0	84.0
1933 -----	1,145	89.4	875	270	68.3	76.2
1934 -----	1,043	80.6	762	281	58.9	74.9
1935 -----	1,020	75.4	793	227	58.7	72.0
1936 -----	1,010	77.6	763	247	58.6	72.2
1937 -----	1,128	85.0	815	313	61.4	67.8
1938 -----	860	60.5	642	218	45.1	65.4

For the purpose of appraisal of tuberculosis control activities, in order to utilize adjusted death rate figures based upon exclusion of nonresident deaths, it is essential that the rate also be adjusted for the deaths of residents of the city of Los Angeles who have died outside the city limits (in Los Angeles County or in some other county or state). Since this has not been done in the city of Los Angeles, the adjusted rate can not be accepted and it is necessary under the circumstances to resort to the use of the crude death rates for tuberculosis. It so happens that the crude death rate for tuberculosis in the city of Los Angeles is not far removed from the properly adjusted death rate as the number of nonresident deaths in the city is only slightly in excess of the number of resident deaths outside the city.

In the special vital statistics reports of the U. S. Bureau of Census for the calendar year 1935, the tuberculosis deaths (all forms) were allocated as to place of residence for the city of Los Angeles as follows:

Number of deaths-----	991
Number of nonresident deaths-----	228
Resident deaths dying elsewhere-----	212
Total deaths inclusive of residents dying elsewhere-----	975
Excess number of nonresident deaths (after adjustment)-----	16
Per cent change-----	-1.6

Accordingly in 1935 the crude tuberculosis death rate exceeded the properly adjusted death rate by 16 deaths or 1.6 per cent. In the State of California the crude rate exceeded the adjusted rate by 27 deaths or 0.6 per cent. So while the necessary use of crude death rate in tuberculosis for the purposes of this survey, will not materially modify the study, this is merely a coincidence. During the same period the crude death rate exceeded the adjusted death rate for tuberculosis in New Mexico by 17.6 per cent, in Colorado by 17.2 per cent, in Arizona by 8.4 per cent and in North Carolina by 8.1 per cent; on the other hand the adjusted rate exceeded the crude rate in Wyoming by 15.5 per cent, in Nevada by 9.3 per cent and in New Hampshire by 5.5 per cent.*

* "The Effect of Residence Allocation on the Tuberculosis Death Rate in the Southwestern Health Resort States." Dr. Halbert L. Dunn, Transactions of 34th Annual Meeting N. T. A., 1938.

While a properly adjusted death rate is the most accurate simply expressed statistical index in any given disease reflecting the health conditions existing in a community, the crude death and morbidity rates in infectious diseases are the most accurate simply expressed statistical index of the health hazard existing in a community with respect to any one of such diseases. For after all, communicability and spread of infection is not any respecter of residency or nonresidency; this fact is a very important matter as regards the public care of cases of communicable, nonquarantinable disease which in California is restricted to residents notwithstanding such cases in the persons of nonresidents constitute just as much—sometimes a greater—hazard to uninfected residents and nonresidents alike. It represents the carrying forward of principles evolved long ago to restrict medical hospital and domiciliary care at public expense to residents of the state and county; the added provision for the care of the so-called quarantinable diseases at public expense represents the public health principles of that era. Many of the nonquarantinable infectious diseases recognized today are more infectious and more dangerous to the public health and as a matter of protecting the public health, all residency restrictions on the public care of such cases when necessary should be removed. Later on, the lack of public medical care of nonresident cases of tuberculosis in the city of Los Angeles will be discussed.

Tuberculosis Hospitals and Sanatoria

In California, the proper care of the tubercular and the prevention of tuberculosis, is recognized as a matter of interest to the state but, in keeping with the policy followed in the state's general governmental administration, the activities are decentralized and given effect through the local government units. Legislation was enacted in the State of California in 1915 which authorized the payment by the state of a subsidy at the rate of \$3 per patient week for all cases unable to pay for and in need of such care and are residents of the state, to local county or incorporated cities which maintained facilities for the hospitalization of active cases of tuberculosis, and preventoria for the prevention of cases, meeting with the standards of the State Department of Public Health.

In 1930, the legislation was amended to restrict such care to residents of the state who were citizens of the United States as the number of cases in Mexican and oriental aliens which have a high rate of attack, overtaxed the facilities available and the financial ability of the commonwealth. The following enacted legislation, approved May 23, 1929, constitutes the present state law on the subject:

"Par. 1. Every city, county, county and city, or group of counties which maintains a tuberculosis ward or hospital for the treatment of persons in the active stages of tuberculosis and maintains a preventorium in conjunction therewith, shall receive from the state the sum of three dollars per week for each person susceptible to tuberculosis cared for in said preventorium at public expense, who is unable to pay for his support, and who has been a bona fide resident of the city, county, city and county or of one of the counties of said group of counties for one year; provided, that no city, county, city and county or group of counties shall be entitled to receive such state aid unless the tuberculosis preventorium conforms with the regulations of, and is approved by, the bureau of tuberculosis of the State Department of Public Health. The medical superintendent of each preventorium receiving state aid under this sec-

tion shall render semiannually to said bureau of tuberculosis a report under oath showing for the period covered by the report:

1. The number of persons susceptible to tuberculosis cared for therein at public expense unable to pay therefor and

2. The number of weeks of treatment of each such patient.

Par. 2. Beginning July 1, 1930, the subsidy herein provided, for the care of patients suffering from tuberculosis shall only be expended for the care and treatment of citizens of the United States of America."

Thus it would appear that this legislation originally was enacted as a public health measure primarily for the isolation hospitalization of active cases of tuberculosis and for the prevention of the development of cases. From a public health viewpoint, it was weakened by the restriction of admissions to residents of the state unable to pay for it and in not requiring adequate hospitalization otherwise of those able to pay. Open cases of tuberculosis in the person of nonresidents and in the person of those able to pay also constitutes a public health menace to the community. This defect in the law was increased by the further restriction of such public care to citizens of the United States, notwithstanding cases in the persons of aliens are a public health menace to the community; inasmuch as these population groups, especially the oriental, constitute an important source of domestic and personal service, the hazard is even more marked. Such a policy really is short-sighted economy, for the failure to care for these ineligible groups of the tubercular, leaves them in circulation to spread infection—not only among their own kind—but also and probably more so, among the public who would be eligible when infected, and so pyramid future costs.

Local governments taking advantage of the state act, universally did so through relief or welfare channels probably because of the restriction of benefits to those unable to pay, rather than through public health channels notwithstanding the apparent primary public health objectives of the act. Inasmuch as the administration of charities in California is a county activity, Los Angeles County in taking advantage of the state act, placed the tuberculosis hospitals it established under the administration of the department of charities which also administers the provisions for the general medical care of the medically indigent, and so the hospitalization of the tubercular in the city of Los Angeles is the function and responsibility of the county department of charities.

The Los Angeles Department of Charities has made several integrated provisions for the hospital care of the tubercular as follows: it has established the Olive View Sanatorium which is located at a moderate elevation inland from the coastal foggy zone and just beyond the northern limits of the city of Los Angeles. It is one of the three largest institutions in the United States for the care of the tubercular. Admissions to Olive View Sanatorium are limited to moderately advanced active cases in which the prognosis is favorable and cases as soon as they reach the convalescent rehabilitation stage are discharged to make room for other new cases. Inasmuch as this is a county-owned institution, the state pays the county the subsidy \$3 per patient week for the medically indigent cases who are residents of the state and citizens of the United States. In addition the institution also receives pay patients.

The county department of charities has made a second provision for the care of the tubercular, collectively known as the Olive View Outside Sanatoria, for the care of the convalescent cases discharged from Olive View who do not have available proper home conditions for their complete rehabilitation and for mild cases not requiring primary hospitalization in Olive View. These sanatoria, some 20 in number, are privately owned and operated institutions and convalescent homes, subject to the approval and general supervision of the State Department of Public Health (and those in the city of Los Angeles, also to that of the city health department) as well as that of Olive View, and are under contract to the county to care for cases referred from the Olive View Sanatorium.

The third provision made for the care of the tubercular is the maintenance of the tuberculosis wings and wards in the Los Angeles County General Hospital. This hospital is located in the city of Los Angeles and has a total capacity of over 3,000 beds and is one of the largest hospitals in the world as well as the most modern and best equipped. The facilities for the care of the tubercular in this institution is limited to those requiring radical surgical procedures and to far advanced and terminal cases in which the prognosis is unfavorable. The surgical cases are held for an average of 90 days and then are transferred to Olive View.

Olive View Sanatorium is the third largest institution for the treatment of tuberculosis in the United States, being exceeded in size only by the Municipal Sanatorium of Chicago, and Sea View Hospital of New York. The total net cost of operation is about one and one-half million dollars per year.

Olive View Sanatorium received its first patients on November 9, 1920. Four wards were opened with a total of 93 beds for tuberculous patients.

In 1915 a law was passed authorizing the state to pay counties owning and operating tuberculosis sanatoria, a sum of \$3 per week for all patients who could not pay anything for their care on condition that they were residents of the state.

The bed capacity was increased in 1924 by the addition of seven new wards which would permit hospitalization for 295 tuberculous patients. By 1931, through a continuous building program, the bed capacity was increased to 977 with 150 beds for children.

A special operating room for pneumothorax therapy was added in 1928, and another special operating room was built in 1935. Collapse therapy by thoracoplasty was started in 1926.

Occupational therapy was set up in 1922. One teacher supplied by the city board of education in 1925 began regular courses of instruction for children. This was followed by the building of a school structure on the grounds of the sanatorium by the city board of education and was staffed with school teachers. At present the school is staffed with one principal and twelve teachers. There are three occupational therapy teachers with the Olive View School.

Olive View has a department for adult education and is staffed with 16 teachers. A regular high school course is given for children in this age group.

In 1922 a rehabilitation program was started; convalescent camps, one for men and one for women, were established for light work and special training. In 1927 training facilities as part of the rehabilitation program were provided by the State Bureau of Vocational Training. A business school was started in 1931 which permitted adults to prepare themselves for gainful employ after discharge from the sanatorium.

The following is a condensed summary of the expenditures made by Los Angeles County for the maintenance and operation of the Olive View Sanatorium for the fiscal year ended June 30, 1938:

Total expenditures (Olive View)-----	\$1,051,172.80
Salaries and wages-----	\$825,769.90
Maintenance and operation-----	161,453.82
Gross operating expense-----	\$987,223.72
Revenues—	
Pay patients -----	\$35,131.19
State subsidy -----	120,881.33
Miscellaneous -----	12,534.00
	168,546.52
Net operating expense-----	\$818,677.20

The average daily census at Olive View in 1938 was 983; an additional 155 were cared for at the labor camps; the total number of employees was 605; the gross patient per diem expenditure was \$2.75; the average daily number of patients for which state subsidy was received in the fiscal year 1938 was 773.

It has been a major problem to provide care for the convalescent overflow patients of Olive View Sanatorium amounting to a daily average of about 900 patients, in over twenty private institutions under contract to board of supervisors of Los Angeles County. These contract institutions are known collectively as the Olive View Outside Sanatorium. The proprietors of contract outside sanatoria are paid according to the number and type of patients, as regards bed, semi-bed or ambulatory status. These terms are defined as follows: A bed patient is one requiring and receiving bed bath, bed pan, and tray service. A semi-bed patient is one who requires tray service, but is permitted to go to the bath and toilet. An ambulatory patient is one who goes to the bathroom, toilet, and to the dining room.

The medical care of the patients placed in the Olive View Outside Sanatoria is furnished by full-time visiting physicians working out of Olive View Sanatorium. The total county expenditures for contract care in the Olive View Outside Sanatoria in the fiscal year 1938 amounted to \$416,073.40. State subsidy is not paid for patients furnished hospitalization in the outside sanatoria. The following is the list of Olive View Outside Sanatoria under contract in 1938:

Antelope Valley Sanatorium
Belvedere Sanatorium
Cabrin's Preventorium
Conkling's Rest Home
Desert Sanatorium
Dore Sanatorium
Elliott's Rest Ranch
Expatients' Home
Finan's Rest Home
Los Angeles Sanatorium

Maryknoll Sanatorium
Monrovia Health Camp
Pasadena Preventorium
Pauling's Sanatorium
Perritt's Rest Home
Santa Teresita Sanatorium
Schroeder's Rest Home
Sunland Sanatorium
Van Velzer's Sanatorium
Wildwood Sanatorium

The following table gives a resume of the facilities maintained by Los Angeles County and available for the hospitalization and medical care of tuberculosis. All three facilities accept both private pay cases as well as nonpay medically indigent cases.

Facility	No. of Beds		
Los Angeles County General Hospital	-----	315	
Olive View Sanatorium	-----	1,017	
Olive View Outside Sanatoria	-----	1,088	
Other beds in private sanatoria available for contract	-----	180	
Total number of tuberculosis beds available	-----	2,600	

	Olive View Sanatorium	Olive View Outside Sanatoria	Los Angeles County General Hospital
Number of beds	1,017	1,088	315
Adults	833	865	268
Children	184	223	37
Total admissions	669	713	1,027
Adults	636	671	-----
Children	33	42	-----
Classified on admission			
Minimal	44	47	51
Moderately advanced	195	124	154
Far advanced	395	507	822
Nontuberculous	35	35	-----
Total patient days	356,984	344,560	92,430
Average days per patient	978	944	90
Average cost of hospitalization and medical care per patient day	\$2 54	\$1 49*	\$3 17
Total patients cared for during year	1,644	1,502	1,193

* Exclusive of medical services.

Other privately owned and operated sanatoria in addition to Olive View and the tuberculosis wing of the Los Angeles County General Hospital, have a total of about 1,268 beds, of which 1,088 or 85 per cent of the total number are contracted for by the county and constitute the Olive View Outside Sanatoria service; the balance are available for private pay patients.

A study has been made of the 860 tuberculosis deaths during the fiscal year 1938 as to the place of death as follows:

Place of Death	Number of Admissions	Number of Deaths	Rate Per 100 Admis- sions	Per Cent of Total Deaths
Home	-----	226	---	26%
Sanatoria	1,382	84	6.1	10%
Los Angeles County General Hospi- tal	1,027	493	48.0	57%
Other hospitals	-----	57	---	7%

About 26 per cent of all city deaths occurred at home, and 57 per cent of the deaths occurred in the Los Angeles County General Hospital, while only 10 per cent of the tuberculosis deaths occurred in the sanatoria. These figures can be misleading. Far advanced and terminal cases of tuberculosis are concentrated in, and few nonsurgical

cases are transferred from, the general hospital; it is the policy of the hospital to transfer usually only those cases recovered from operative treatment to Olive View or to Olive View Outside Sanatoria that show the best chances of becoming arrested; for these reasons the percentage of the total deaths in the city, occurring in the general hospital is high. In passing, the following observation was noted: since the schools of medicine of both the University of Southern California and the College of Medical Evangelists utilize the clinical facilities and material at the Los Angeles County General Hospital, it is regrettable that the far advanced or terminal cases of tuberculosis must be largely utilized for teaching purposes. Training and experience in the diagnosis and treatment of early minimal and moderately advanced tuberculosis is the most important and the most difficult.

From the foregoing table it can readily be seen that too many active spreaders of tuberculosis died at home. During the terminal stages of the disease there is greater danger to the contacts of the case especially if these contacts are in the lower age groups. One reason why the percentage of deaths occurring in the homes is so high is that a large number of cases are said to refuse hospitalization. The reason given is that the patients are charged the full cost of hospitalization unless they are altogether destitute and are without near relatives who could pay the costs. The Department of Charities insists that a lien be entered against all present or prospective property to cover the cost of hospitalization; frequently attempts have been made to collect hospital costs long after the death of the patient, or if any, the responsible members of the family are followed up by county social service workers for collections, should the family ever be in a position to pay some time in the future.

All cases found by the city health department in the city of Los Angeles which require hospitalization for tuberculosis and are unable to pay for it, are referred to the placement bureau (which is the medical social service division) of the county department of charities located in the Los Angeles County General Hospital. City and county cases found eligible are placed in either the tuberculosis wards of the Los Angeles General Hospital, Olive View Sanatorium or one of the contract Olive View Outside Sanatoria. Placements usually are made in the following priority, according to status of residency:

		Number of Self-Supported Years in	
		State	County
Resident -----	Over 3 years	Over 1 year	
Provisional resident -----	{ Over 3 years	Under 1 year	
	{ Under 3 years	Over 1 year	
Technical nonresident * -----	Over 3 years	Over 1 year	
Transient -----	Under 1 year	Under 1 year	

* This group has been on some type of public or private relief for a varying number of years and have not been self-supporting citizens for the required length of time to qualify as residents.

Plans are being studied by the county supervisors to allow for more adequate facilities to handle overflow patients—at present representing all other than the first order of priority for admissions. Olive View has been expanded to over 1,000 bed capacity and there are over 900 beds provided under contract in Olive View Outside Sanatoria exclusive of about 130 beds in preventoria.

The department of charities made the following sanatoria placements of the referrals received from the five main sources as listed below during the fiscal year July 1, 1937 to June 30, 1938:

Source	No. of Case Referrals	Original Placements in Sanatoria			Per Cent Placed
		Olive View	O. V. Outside	Total	
City health department.....	461	188	113	301	65
County health department.....	391	176	120	296	75
Long Beach Tuberculosis Assn....	37	18	14	32	86
Los Angeles County Gen. Hosp....	603	233	298	531	88
Pasadena Tuberculosis Association	50	19	14	33	66
Miscellaneous	20	35*	13	48	--
Total.....	1,562	669	572	1,241	

* 32 of this number were subsequently transferred from Olive View to Olive View Outside Sanatoria.

It will be noted that 49 per cent of the new cases and 58 per cent of the deaths occurring during 1938 in the entire county, took place in the city of Los Angeles containing about 65 per cent of the total population of the county. Institutional placements of city cases represented about 45 per cent of the total admissions and about 65 per cent of referrals from the city health department for hospitalization.

The following table gives the number of reported new cases of tuberculosis and the reported number of deaths from tuberculosis for the entire county of Los Angeles during the fiscal year 1938.

	New Cases of Tuberculosis Reported	Number of Tuberculosis Deaths Reported
City of Los Angeles.....	2,302	860
City of Long Beach.....	356	26
City of Pasadena.....	76	24
Other Los Angeles county.....	1,970	570
Total.....	4,704	1,480

These data indicate that according to accepted standards, the number of deaths from tuberculosis in Los Angeles County during 1938—1480 times two, or 2,960—represents the minimum of sanatorium beds that should have been available for the hospitalization of cases of tuberculosis in that year, whereas there were available at most, a total of 2,600 beds, including those in contract convalescent homes and sanatoria and some 130 beds in preventoria.

The metropolitan area of Los Angeles for the last thirty years has been undergoing phenomenal growth in population approximating 50 per cent average increase in population each decennial period or an annual average increase of about 5 per cent; there is no indication that this increase is beginning to fall off—in fact there is every indication of maintaining this rate of growth during the next decade, at least.

Admittedly, especially from a public health viewpoint, there are many additional cases that should be hospitalized that are already known, but not eligible by reason of residence or citizenship; furthermore a well organized consistently prosecuted case-finding program would undoubtedly reveal many more cases particularly in early or minimal involvement stage, in need of hospitalization.

Early hospitalization is good economy as well as good human conservation. The further advanced a case is (until it is hopeless), the

greater the cost and the lesser the chance of arrest and rehabilitation. Furthermore, the earlier cases are found and hospitalized, the less is the public exposed and the less is the number of new contact cases that will develop. The fact that 7 per cent of all admissions to sanatoria in Los Angeles County were cases of early or minimal involvement, while 24 per cent were moderately advanced and 69 per cent were far advanced is an indictment of the present situation.

Taking all these factors into consideration and assuming a population in Los Angeles County within ten years of 3.5 million and an average death rate for the next ten years of 50, there would be required a minimum of 3,500 beds, or about 900 additional beds for the hospitalization of tubercular cases under present practices.

If such hospitalization were based upon broader public health viewpoints and provisions were made to adequately protect the public, as well as taking care of the ill, and effective case-finding were to be accomplished, this estimate would be increased by 25 to 50 per cent, say to 1,300 additional beds but, on the other hand, that would probably represent the maximum required for by then the effects of adequate case-finding and early hospitalization could be expected to reduce the needs to a degree offsetting further population growth.

It is quite attainable by the end of the useful life of the present facilities plus such new facilities added in the near future, that the dividends of adequate hospitalization and public health work begun now and continued would become manifest and would result in reduced future need for hospitalization facilities.

All this look into the future is predicated upon present scientific knowledge respecting the apprehension and treatment of the disease; but we are living in an age marked by phenomenal advances, especially in chemo-therapy, in the cure of disease and who can say whether, or when, tuberculosis therapy might not be revolutionized as has syphilis and pneumonia therapy; but at least we can be confident that any facilities provided now for the care of the tubercular, could be utilized for other public needs in that auspicious event.

Those further interested in the tuberculosis problem as it exists in the metropolitan area of Los Angeles city and county, will find a very interesting study recently made in 1937 in this regard by Doctor Robert E. Plunkett, Superintendent of Tuberculosis Hospitals of the New York State Department of Health, entitled "Survey of Tuberculosis Control Program in Los Angeles County, 1937," a copy of which probably can be made available by the Director of the California State Department of Public Health. The year before Doctor Plunkett's study, a very interesting published study of a different type was made by Doctor Emil Bogen of Olive View and assistants; this study was organized as a WPA project and involved a statistical analysis of 516 admissions to Olive View during the preceding 18 months or so. This study sheds considerable light on the presanatorium background of these cases; it definitely shows delay in obtaining hospitalization and the need for more intensive early case-finding and that the great majority of cases apparently were contact infections in homes.

Case-finding in Schools

There is every evidence that there is something lacking in case-finding activities in tuberculosis control in the city of Los Angeles. The

provisions to be made for the establishment of an industrial hygiene division in the city health department should provide excellent opportunity in industry for case-finding work in the adult wage earner group. However, another most important opportunity for case-finding has not been fully availed of. While complete data were not obtainable, it would appear that case-finding in school age groups, particularly in high school age groups, was not being adequately accomplished; indeed it is not certain that it is being routinely attempted.

The city health department does not undertake to furnish general public health services in the public schools; the department of education maintains a health service section for that purpose and the health department only takes care of private and parochial schools. So far as the records would indicate an adequate and persistent routine of tuberculosis case-finding in schools is not accomplished in either public or parochial schools.

During the fiscal year 1938 a special case-finding program was accomplished in a portion of the city public schools, which apparently was sponsored by the Los Angeles Tuberculosis Association and the Parent Teachers Association; it was organized as a self-limited Works Progress Administration project and cosponsored by the board of education. This program was carried on in 17 high schools during the period October 25, 1937, to May 16, 1938. These schools had a total enrollment of 25,755 and parental consent was given for 16,873 students or about 65 per cent to submit to the tests. The following table briefly summarizes the results of tuberculin (Mantoux) testing:

		Per Cent Examined
Total Mantoux tests performed.....	16,805	100
Number Mantoux positive.....	3,624	22.22
Number Mantoux positives X-rayed.....	3,237	19.85

The following table briefly summarizes the results of tuberculin testing plus X-ray examination of 3,237 positive reactors:

	Number	Per Cent
Tuberculin (Mantoux) negative.....	12,681	77.78
Tuberculin (Mantoux) positive.....	3,624	22.22
Tuberculin positive, X-ray negative.....	2,565	15.73
Tuberculin positive, X-ray positive.....	673	4.13
Tuberculin positive, not X-rayed.....	387	2.37
Tuberculin positive, X-ray positive, active.....	36	0.22
Tuberculin positive, X-ray positive, suspected active.....	84	0.52
Tuberculin positive, X-ray positive, arrested.....	552	3.39
Tuberculin positive, X-ray positive, active pulmonary.....	34	0.21
Tuberculin positive, X-ray positive, suspected pulmonary.....	84	0.52
Tuberculin positive, X-ray positive, arrested pulmonary.....	5	0.03
Tuberculin positive, X-ray positive, active pulmonary minimal.....	24	0.15
Tuberculin positive, X-ray positive, active pulmonary, moderately advanced.....	7	0.04
Tuberculin positive, X-ray positive, active pulmonary, far advanced.....	3	0.02
Tuberculin positive, X-ray positive, childhood type, active.....	2	0.01
Tuberculin positive, X-ray positive, childhood type, arrested.....	547	3.34

From the foregoing table, it will be observed that this limited case-finding program in a group of 16,873 students cooperating out of a total student body of 25,755 in 17 schools, resulted in finding 120 cases, or 0.74 per cent of the group examined to have active or suspected cases of tuberculosis, some of which should have hospitalization and some of which should be placed in preventoria owing to the impracticability of carrying out preventative measures adequately under home conditions.

The following table summarizes the sponsorship and financing of this case-finding study:

Paid by students at \$1 per film-----	\$1,687.56
Paid by Los Angeles Tuberculosis Association—	
X-rays -----	\$1,757.44
Physician -----	1,500.00
	<hr/> 3,257.44
Paid by parent teachers association-----	800.31
Paid by board of education—	
Equipment and supplies-----	\$689.40
Salary of physician-----	500.00
	<hr/> 1,189.40
WPA project salaries—	
Mantoux unit -----	\$1,700.00
X-ray unit -----	5,240.00
Conference unit -----	1,590.00
Office unit -----	2,225.00
	<hr/> 10,755.00
Grand total -----	<hr/> \$17,689.71

It will be seen that this case-finding program cost \$147.42 per case found having immediate public health significance; such a cost is quite excessive and would be greatly reduced under circumstances in which case-finding is a routine and continuous activity of some official organized unit such as preferably the tuberculosis division of the city health department, or alternately the health service section of the department of education. If conducted by the health department with the consent and/or assistance of the public school department in public schools, the private and parochial schools could be also included in the scope of the activity as they certainly should be.

Los Angeles Tuberculosis Association

The Los Angeles Tuberculosis Association apparently is the most active unofficial agency participating in the tuberculosis control program in the Los Angeles metropolitan area. It was first organized in 1902 as the Southern California Anti-Tuberculosis League and in 1906 opened the first medical nursing relief office in the city with a visiting nurse in attendance.

When the state law was passed in 1907 requiring the reporting to local health offices of all cases of tuberculosis, the league was reorganized and became the Los Angeles Society for the Study and Prevention of Tuberculosis and in 1909 conducted the first local Christmas Seal campaign, and the relief station meanwhile became particularly interested in tuberculosis work. In 1912 the local sale gave way to the first National Christmas Seal Sale in Los Angeles; the proceeds were \$3,287.45. In 1913 a cooperative arrangement was effected whereby an additional nurse was provided by the city health depart-

ment to assist in the relief station work. In 1914 a second relief office was opened and in 1915 a third relief office was established and a state law was passed authorizing local health departments to employ tuberculosis nurses and the payment of a subsidy for care of indigent persons.

The society reorganized again in 1916 and became the Los Angeles Tuberculosis Association. Two additional relief clinics were opened and a summer treatment camp was opened at Hermosa Beach; a full-time executive secretary also was employed by the association. In 1917 a special clinic for the Japanese was opened and in 1918 a second summer treatment camp was established at Devil's Gate to care for 220 children; the next year, 1919, a full-time public health nurse was employed and another summer camp was opened in the San Gabriel Canyon to care for an additional 296 children.

The tuberculosis program made strides in 1920; the Olive View Sanatorium was completed and opened with a capacity of 96 beds and the director of the tuberculosis division of the city health department was made a full-time employee. A tuberculosis teaching clinic was opened in the White Memorial General Hospital and special open-air school rooms were provided by the board of education.

During the five years, 1921-1925, special dental clinics were established for tubercular patients and three new clinics were opened at San Pedro, West Los Angeles and Venice; the summer treatment camp in the San Gabriel Canyon became a year around institution. Public education in nutrition became emphasized in public and parochial schools, in the clinics and so on.

In 1927, the city health department took over and assumed responsibility for the various clinics as part of the enlarged activity of its tuberculosis division and the association engaged in a follow-up study of all discharged sanatorium cases. In 1928, the association conducted the first early diagnosis campaign in the city of Los Angeles, in which 1,099 persons were examined for tuberculosis and some 64,000 pamphlets were distributed. The onset of the depression caused a shrinkage in the Christmas seal sale receipts; in 1932 the sale only amounted to \$38,896. The treatment camp and preventorium in San Gabriel Canyon had to be removed in 1933 to make way for the San Gabriel Dam and it was relocated at Monrovia. By 1936, the Christmas seal sale had recovered considerably and the proceeds amounted to \$55,000. The association began to consider other lines of work to take up in lieu of the operation of its clinics which were discontinued in favor of city health department clinics. Tuberculin testing in public schools was begun in cooperation with the board of education. A full-time rehabilitation counselor was employed and an education and guidance committee was formed.

The present activities of the Los Angeles Tuberculosis and Health Association consist chiefly of education of the public in early diagnosis, adequate medical care, institutionalization, occupational therapy; the rehabilitation of tuberculosis patients prior to discharge from sanatoria; and the promotion and participation in early case-finding, especially in schools. The case-finding activities for the fiscal year 1938 were briefly reviewed in the preceding section.

In October, 1938, two public health nurses were employed and assigned to the city health department to work under the direction and supervision of the nursing service of the department. These nurses do the epidemiological follow-up work connected with the tuberculin testing program in the schools.

The present personnel organization of the Los Angeles Tuberculosis and Health Association, Inc., comprises the following:

Executive secretary;
 Director of health education;
 Director of social studies;
 Rehabilitation counselor;
 Assistant executive secretary and publicity secretary;
 Physician on tuberculin testing (part-time);
 Clerical staff (4 full-time stenographers and clerks).

In 1938, the Los Angeles Tuberculosis and Health Association, Inc., disposed of the preventorium to a nonprofit association. The Christmas seal sale amounted to \$60,500.87 which was allocated as follows:

Expenses:

Seal sales -----	\$24,710.72
Administration -----	7,925.84
Health education -----	8,299.96
Case-finding -----	4,947.49
Research -----	3,155.84
Rehabilitation -----	2,819.95
Cooperation with other agencies -----	945.27
	<hr/>
	\$52,805.07
Balance in reserve -----	7,695.80
	<hr/>
Total -----	\$60,500.87

The distribution of educational pamphlets in tuberculosis is a very important function of the association. During the fiscal year 1938, there were distributed 164,159 pamphlets; the following is a list of their titles:

Tuberculosis—Basic Facts in Picture Language
 The Story of the Christmas Seal
 Why Does Tuberculosis Run in the Family
 The Adventure of Case Finding
 Tuberculosis and the Teen Age
 Closing in on the Old Enemy
 Tuberculosis from Five to Twenty
 Tuberculosis in Children
 Teaching Hints on Good Health and Good Manners
 Preventing Tuberculosis
 Tuberculosis Doesn't Just Happen
 From Whom—To Whom?
 What's Ahead in Tuberculosis
 Landmarks of Progress
 Tuberculosis in its Relation to Public Health
 Mr. Taxpayer Goes Shopping
 Roentgen's Ray
 Robert Koch
 Laennec—The Listener
 Tuberculosis Control
 Tuberculosis and Literary Genius
 Student Cooperation in Tuberculosis Control
 Christmas Seals Around the World

Diagnostic Standards
The Christmas Seal
Making the Cure Stick
Your Real Friend
Shall I Hire Them
Go to Your Doctor
Let Your Doctor Decide
The Foe of Youth
A King Could Not Do It
Contact from Whom to Whom
The Tuberculin Test
A Stitch in Time
In Every Home
Who Next
It Can Happen
Tired—Weak—What's the Cause
Signals
How You Get Tuberculosis
A Barrel of Apples
Modern Weapons to Fight Tuberculosis
Tuberculosis—What You Should Know*

In addition the association prepared 82 newspaper releases and reprinted 408 clippings. The association has still and movie pictures and provides lectures; during 1938, 105 lectures were given to audiences totaling 29,939 persons.

Summary

Reporting of cases of tuberculosis occurring in the city of Los Angeles during the fiscal year 1938 attained a proportion of 2.3 cases reported per triennial average death which compares favorably with the generally accepted standard of 2 per death. However, the registration of known living cases as part of the health department records was deficient, there being 1,774 cases registered that year, equal to 1.8 cases per triennial average death as compared with the minimum standard of 5 cases registered per death. In fact the number carried on the register, 1,774 is considerably less than the number of new cases reported for the same year, 2,302. The explanation of this statistical situation would appear to be that the cases carried on the city register represent cases in the city under home care of private physicians or clinics of the tuberculosis division; almost all of the cases hospitalized are in the three county institutions, two of which are without city limits and cases transferred to hospitalization appear to be dropped from the active register; a fair percentage of cases on the register are post-hospitalization cases and apparently were restored to the register upon release from the institution and return to their homes in the city. The procedures followed for systematic reporting to the city health department of city cases released from county hospitalization are very good, providing for a report on home conditions prior to discharge from the institution which report is utilized to determine in part, the length of hospitalization necessary in the individual circumstances.

The examination of contacts of new reported cases of tuberculosis by the city health department is apparently deficient. In 1938 there were 2,302 new cases reported and 2,981 contacts were examined in the clinics of the city health department, equal to 1.3 contacts examined

* Also issued in Spanish.

per new reported case, whereas the generally accepted minimum standard is 3 contacts examined per new case. Here again, the records of the health department appear to be deficient in that a record was not available of contacts able to pay for examination who were advised to undergo examination by their private physician, as to whether they were in fact so examined.

The generally accepted minimum standards for clinical services rendered by the city health department were considerably exceeded in the fiscal year 1938. A total of 24,242 visits to clinics were recorded, equal to 28 visits per death, as compared to the minimum standard of 15 visits per death. The standard proportion of 2 clinic visits per registered case likewise was exceeded, the average attained being over 3; even this figure is believed to be low as there is a total of 7,501 cases carried on register while only 1,774 cases are carried on active register and it is regarded that neither figure properly can be used in making this computation; some figure in between these two figures probably should be used but sufficient data were not available to determine what it should be. In any event, it is very obvious that in the tuberculosis control activities of the city health department the emphasis is on the clinics. It is noteworthy, and further evidence of outstanding weakness in case-finding in the department's program, that only 6 per cent of the new clinic cases were minimal whereas not less than 15 per cent is the accepted standard where adequate case-finding is being accomplished. While adequate data were not obtainable, the definite impression was gained that case-finding in the high school age groups was not being consistently carried out; in fact data for only one incomplete survey was obtained. It seems quite certain that the accepted standard of 90 per cent of such group having been tuberculin tested and that at least 50 per cent of the positive reactors having been X-rayed is nowhere nearly met. Such activities are not within the jurisdiction of the city health department, but are vested in the health service section of the department of education.

The activities of the public health nursing division apparently exceed standards; during the fiscal year 1938 nurses made 41,576 home visits credited to tuberculosis control or 28 visits per death as compared to the minimum standard of 30; on the basis of visits per active case, there were 1,316 cases carried on the register as active cases, giving an average of 31 visits per active case whereas the minimum standard is 12. Here again, the computations are not dependable, owing to the methods used in recording home visits—a visit for whatever purpose to the home of a case of tuberculosis is credited as a tuberculosis visit rather than to the primary interest of the visit. Even making allowance for such recording methods, the visit ratio is still high and reflects heavy emphasis on that phase of what is intended to be a general public health nursing program. The nurses also conduct the epidemiological investigation of cases. Nursing visit data were not segregated so as to permit determination of the percentage of new cases visited within one month of reporting, or of post-sanatorium cases visited within one month of discharge. It was stated that such was done, but data as to numbers were not available.

The hospitalization of cases of tuberculosis in need thereof appears adequate as to quality and duration, but definitely deficient as to quan-

tity in term of numbers accepted. The accepted minimum standard for average length of hospitalization is 150 days per reported death; in the three facilities maintained by the county, the rate was 200 days of hospitalization per reported death in the fiscal year 1938. However, in so far as the city of Los Angeles is concerned, only 65 per cent of the cases referred by the city health department for hospitalization were accepted; although the population of the city represents about 60 per cent of the total population of the county, only 45 per cent of the beds were occupied by patients from the city. This situation does not necessarily reflect discrimination against the city as such, but probably reflects a greater number of city cases being found to be ineligible for county care by reason of residence and citizenship requirements. Admittedly, the total number of beds available for the hospitalization of tuberculosis is definitely deficient for the already apparent case load, nevertheless it would appear that public health and medical human considerations should take precedence over citizenship or residence in making the now necessary selection of cases for acceptance and if this were done the city cases hospitalized would undoubtedly exceed the city's pro rata share of bed capacity; but certainly indigent cases in city environment are usually more urgently needful of hospitalization both from a medical as well as a public health viewpoint.

It was reported that 65 per cent of all cases accepted for hospitalization were hospitalized within two months. However, only 301 or 65 per cent of the 461 cases recommended for hospitalization by the city health department were accepted during the fiscal year 1938 which means that so far as the city of Los Angeles is concerned, only 42 per cent of the cases recommended for hospitalization were hospitalized within two months. The accepted minimum standard is the hospitalization of 60 per cent of the cases within two months following reporting.

Collapse therapy is used to some extent both at the Los Angeles County General Hospital and also recently at Olive View Sanatorium. Thoracoplasty and similar major surgical therapy is done only at general hospital. During 1938, collapse therapy was initiated on 7 moderately advanced and 8 far advanced cases in these institutions; none was initiated on minimal cases. However, the central clinic of the city health department initiated collapse therapy on 248 cases during the year and these cases revisited the clinic 6,018 times for refills and check up; the records of these cases were not segregated as to stage of disease.

No data were obtainable at either the county institutions or the clinics of the city health department as to the number of positive sputum cases leaving treatment against medical advice. The generally accepted maximum is 5 per cent and it should be 0; open infectious cases of tuberculosis should be subject to quarantine restraint regardless of their desires in the premises until they are sputum negative and sufficiently healed to no longer constitute a menace of infection to others.

The number of specimens examined for *B. tuberculosis* by the laboratory division of the city health department for the fiscal year ended June 30, 1938, was 5,534 of which 549 were positive. There occurred during the year 860 deaths and the generally accepted mini-

imum standard is ten laboratory examinations per death; the number of examinations made is equal to 6.4 per death. On the bases of the population of a community, the minimum standard is 4 examinations per thousand of population whereas the number made is equal to 3.7 per thousand population. However, the examinations made by the laboratory division do not represent the total laboratory examinations made as additional laboratory examinations are also made in connection with the hospitalization of the tubercular in the three county units—Olive View Sanatorium, Olive View Outside Sanatoria and the Los Angeles County General Hospital—which hospitalize cases of tuberculosis from the city. Records of these examinations were not segregated to permit determination of the number of examinations made on city cases.

Community health instruction in the city of Los Angeles is carried on by the Los Angeles Tuberculosis Association, the health service section of the public schools and the city health department. The tuberculosis association does practically all the preparation and distribution of education pamphlets on the subject of tuberculosis. During the fiscal year 1938, a total of 164,159 pamphlets were distributed. Some of these pamphlets were also issued in Spanish for the benefit of the Mexican population. In addition, the association prepared 82 articles for newspaper publication. This educational function is properly one of their major activities. The health service section in the public schools regularly conduct an active health education program in the student body. The public educational accomplishments of the city health department in tuberculosis is practically limited to the preparation of posters, participation in lectures before interested groups, and that very important activity of the public health nurses. The educational program of the city health department needs enlargement and greater accentuation.

Recommendations

It is recommended:

1. That the division of tuberculosis of the Los Angeles City Health Department increase its activities along the following public health lines:

- (a) More adequate statistical information.
- (b) Early case-finding and diagnosis—continuous tuberculin testing X-ray examination in successive districts or sections—and all high schools.
- (c) Promote earliest possible segregation of sputum positive cases, particularly from children in the homes.
- (d) Sustained follow-up and repeated examination of intimate contacts, especially in young and adolescent age groups to detect earliest signs of involvement.
- (e) Home nursing education of the patient and responsible members of family.
- (f) Follow-up of post sanatoria home cases and rehabilitation cases.
- (g) Keeping the arrested case arrested.
- (h) Education of the public.

- (i) Provide adequate clinic facilities easily accessible to public and gradually build up each branch clinic so that it may serve as a self sufficient unit, completely and adequately staffed and equipped to handle the average case.

2. That since a marked shortage of sanatoria beds is definitely demonstrable for the city of Los Angeles as well as for the county as a whole, it is therefore recommended that 1,000-1,500 additional beds for tubercular patients be made available through the department of charities of the county of Los Angeles at Olive View Sanatorium or some other suitable location.

3. That some arrangement be made to permit representation of the major health departments in a county board for placements of tubercular cases in sanatoria.

4. That placements for hospitalization be based more on the public health implications of the individual case and less on residency and citizenship status; new legislation should be enacted to so permit, if necessary.

5. That a record be kept by the city health department at least of all cases referred for hospitalization, showing the time interval between date of onset, date of diagnosis, date of referral and date of placement; if not placed the reason for nonplacement; the stage of involvement and whether sputum positive and the home conditions—especially the number, age and relationship of immediate family or household contacts.

6. That a central registry of all tuberculosis cases be organized and maintained to serve the county of Los Angeles as a whole; this could be accomplished by the State Department of Public Health or the Los Angeles County Health Department by joint agreement of all the separate local health departments in the county of Los Angeles. This central registry should be supplied with and should maintain complete information respecting:

- (a) All reported cases of tuberculosis reported.
- (b) All reported deaths from tuberculosis.
- (c) All transfers in or out of a local health department jurisdiction within the county by reason of change of residence, hospitalization or otherwise.
- (d) Institutionalization; admissions, discharges and deaths; condition on discharge and where sent for post sanatoria after care.

With such a central registry, clinic records could accompany any patient transferred from one clinic to another within any local health jurisdiction upon changes of residence, et cetera; meanwhile in the absence of a central registry for the county of Los Angeles, that the division of tuberculosis of the city health department keep its own current tuberculosis registry with current corrections as to change of residence, hospitalization, change of diagnosis, reported deaths, new cases reported, and post sanatorium and arrested cases. The director of the tuberculosis division should at all times be in a position to know the number and age of cases and their contacts, stage of involvement, whether sputum positive, whether the case is in a sanatorium, is having post sanatorium care, is living at home or whether the con-

tacts have been examined and there is continuous surveillance of contacts especially in lower age groups, and other pertinent information.

7. That the record system of the tuberculosis and nursing divisions be revised to show data pertaining to the public health approach to tuberculosis control rather than so much emphasis on the clinical aspects. This revision should be in accordance with standardized records in general use elsewhere so that there may be uniformity and comparability of such records within the State of California and in other states.

8. That the director of the tuberculosis division collaborate with the director of the public health nursing division regarding the recording in tuberculosis visits of certain important data of public health significance such as:

- (a) Current registry of all known cases of tuberculosis registered with the nursing service.
- (b) Record of elapsed time between the first home nursing visit and the date of reporting of cases and deaths from tuberculosis, or reported discharge of case from sanatorium or hospital.
- (c) Record of contacts examined, date, place (clinic or physician) and results of such examinations; record of follow-up of contacts not examined.
- (d) Record of post sanatoria follow-ups.
- (e) Record of date and place of hospitalization, and date of referral.
- (f) Record of home nursing visits be charged to primary purpose of visit in tuberculosis homes.

9. That the reporting of cases by stage of tuberculosis involvement be stressed to a greater extent, especially to the family physician who should be educated in the public health need of such reporting; when morbidity reports are sent in which do not record the stage of involvement, the physician should be contacted to obtain a complete morbidity report; that a careful check be made of all cases reported from all sources to avoid duplication of reporting and all deaths from tuberculosis checked against cases reported; if not reported as a case, it should be recorded as being an unreported case and a reported death.

10. That coordination be continued and improved of the activities for the control of tuberculosis of the various agencies, such as the Los Angeles County Health Department, the Los Angeles County General Hospital and Olive View Sanatorium, the Health Service Section of the Los Angeles City Department of Education and the Los Angeles Tuberculosis and Health Association.

VENEREAL DISEASE CONTROL

By T. J. BAUER, P. A. Surgeon, U. S. Public Health Service

Administration

The control of venereal diseases in the city of Los Angeles is a responsibility of the Los Angeles City Health Department and is the function of the division of venereal diseases, which originally was established in 1917 as one single unit. However, in the following year the division was separated into two distinct divisions, namely: the women's venereal disease division, and the men's venereal disease division, and these constitute the present administrative organization for the venereal disease control program of the city health department. The following is a description of each of these divisions and its personnel as of January, 1939.

Women's Venereal Disease Division

The women's venereal disease division is under the direct supervision of a full-time director, who is a female doctor of medicine and is directly responsible to the city health officer. The city health department budget provides for the following list of personnel for the division:

- One full-time physician (director)
- Five part-time clinicians
- One supervisor of clinic nurses
- Two full-time clinic nurses
- One full-time social service worker
- One part-time social service worker (6 hours a day for 5 days a week)
- One clerk

The aforementioned personnel work in the central women's clinic located in the health department building. This group is not sufficient to thoroughly carry out the work demanded of the division and without the following temporary assistance, the division could not perform the work demanded of it on the present budget. At the present time the State Department of Public Health is temporarily assisting by furnishing the services of an additional full-time physician who is acting as the assistant director of the division, and additional workers for the clinic who work the usual 120 hours per month have been made available through a W.P.A. project. The personnel furnished the division through the W.P.A. project are as follows:

Seven part-time nurses (routine duties in the central clinic) and seven part-time clerks. (Four are assigned to correspondence follow-up of delinquent and lapsed cases.)

The women's venereal disease division has a high degree of autonomy and its coordination with the men's venereal disease division and

the public health nursing division is voluntary and largely casual, since the venereal disease program of the city health department lacks a single directing head.

The social workers are responsible for the epidemiologic investigation and the follow-up of the patients in the central women's clinic under the direct supervision of the director of the women's division.

Most of the activities of the division are confined to treatments performed in the central clinic. The director, however, does supervise treatment of women and children in the Van Nuys, Venice and Watts district clinics. These district clinics will be discussed in detail subsequently.

Men's Venereal Disease Division

The men's venereal disease division is under the direct supervision of a full-time director, who is a doctor of medicine and is directly responsible to the city health officer. The city health department budget provides for the following personnel for the division:

- One full-time director
- Seven part-time physicians
- Two full-time social workers
- One full-time nurse

The above-mentioned personnel work in the central clinic located on the second floor of the city health department building. Five physicians attend three clinic sessions a week, one physician attends six clinic sessions a week and one physician attends four clinic sessions a week. Most of these clinicians have been working in the central clinic for several years. The number of employees is not sufficient to properly carry out the work of the clinic. It is notable that the budget of the city health department does not provide for a clerk for the men's division. This division does, however, have temporary assistance supplied through a W.P.A. project, which furnishes the following personnel who work the usual 120 hours a month:

- One senior clerk
- Four junior clerks
- Two registered nurses
- One nurse (not registered)
- Two orderlies

The men's venereal disease division, like the women's division, is highly autonomous and maintains only casual relationship with the women's division or the public health nursing division. Most of the activities of the men's division are spent in providing treatment facilities in the central clinic. The epidemiologic investigation and follow-up work is carried out principally by the two social workers.

In order to complete the picture, as far as personnel for the control of venereal disease in the city of Los Angeles is concerned, it is necessary to discuss briefly the personnel temporarily supplied to the city health department by the State Department of Public Health. In October, 1938, the State Department of Public Health provided the city health department with three full-time physicians who recently had

had special training in venereal disease control. Two of the physicians were placed in health district clinics and the other physician has been acting full-time as assistant director of the women's central clinic. Two public health nurses temporarily furnished by the State Department of Public Health for the purpose of epidemiologic investigation and follow-up work have been placed in two of the health district clinics, Van Nuys and Venice. The State Department of Public Health further temporarily has provided a laboratory assistant, who is used in the central clinics to perform darkfield examinations, urine examinations and gonococcus cultures and smears; the spare time of the laboratory assistant is utilized in the public health laboratory in assisting with serologic examinations for syphilis.

The personnel of the division of public health nursing furnishes certain assistance in the control of venereal disease. Nurses from this division make follow-up visits on delinquent children and pregnant women. This division also has the responsibility of the follow-up work and contact investigation in the women's clinic at Watts Health District office. While the nurses are asked to follow-up cases for both the venereal disease divisions, the assistance available in the nursing division is not used to the best advantage by either the women's or men's divisions of venereal diseases.

In reviewing the foregoing discussion, it is evident that there is not the proper coordination and integration of the various divisions performing venereal disease control activities. The venereal disease control activities should be consolidated into one division and under the administrative direction of a full-time adequately trained venereal disease control officer. This full-time director should not only be experienced in clinical management of patients infected with venereal disease but should also be properly trained and experienced in the methods of public health administration. He should be responsible for the supervision of the standardization of treatment and records, personnel, follow-up work (contacts and lapsed cases), collection of statistical data, coordination of venereal disease control activities and the educational programs. The administrative details of a venereal disease control program in a city the size of Los Angeles necessitates the full-time attention of a director, and he should not be expected to perform routine duties in the clinic as now must be done by the directors of both the venereal disease divisions.

At the present time there is no local advisory committee to the divisions of venereal disease control in the city health department. Such a committee is very helpful in assisting the venereal disease control officer to develop new programs, to assist with the educational work and to give expert technical and clinical advice. Such a committee could be organized under the leadership of the venereal disease control officer. The members of such a committee should include representatives from the medical and allied professions and from the voluntary social and treatment agencies.

Expenditures

While it is impossible to give the actual amount of money spent in the city of Los Angeles for the treatment and control of venereal

disease, one can estimate fairly closely the amount spent for this activity by the city health department. In computing the expenditures for venereal disease activities by the city health department there has been added to the expenditures of the women's and men's divisions 20 per cent of the laboratory expenditures and 5 per cent of the expenditures for the nursing division; this method is used by the accounting division of the city health department.

The following table shows the expenditures in the past several fiscal years for venereal disease control activities by the city health department, as computed by the above method. At the time of writing this report the cost report for the fiscal year 1936-37 was not available.

1933-1934	1934-1935	1935-1936	1936-1937	1937-1938
\$37,846.45	\$41,315.32	\$46,340.74	Not available	\$46,137.16

The above figures show that there has been only a small increase in the amount of money spent by the city health department on venereal disease control during the past five years. While it is conservatively estimated that a 9 to 11 cents* per capita is needed for a well organized venereal disease program in the average community, the city health department is only spending a little more than 3 cents per capita.

In the year 1938, 7,765 new cases of syphilis coming under treatment of private physicians and clinics were reported from the city of Los Angeles. This is equivalent to an annual rate of 5.4 cases of syphilis per 1,000 population. In computing the annual syphilis rate per 1,000 for ten large representative northern cities in the United States for the fiscal year ending June 30, 1938, it was found to be 4.29 per 1,000 population. While this, of course, does not give the actual rate of syphilis infections in the area reviewed, it does indicate that the problem in Los Angeles is at least as great as in the average northern city. Therefore, it would seem reasonable to assume that the city of Los Angeles at least should expend as much as is recommended for the average city of the United States. This would necessitate a budget three times the amount of the budget for the fiscal year 1937-1938.

This increase in the venereal disease division budget is needed in order that treatment facilities may not only be improved but may also be expanded. An increase in the budget will also be needed to develop other phases of a well organized venereal disease program such as follow-up of lapsed cases and contacts, and educational work. Specifically, additional clinics are needed in the city, additional permanent clerical and professional help is needed and subsidy of at least some of the existing venereal disease clinics not officially under the city health department seems to be desirable.

Morbidity

According to the Public Health Act of California approved March 23, 1907, and amended on several subsequent occasions, both syphilis and gonococcus infections are required to be properly reported in writing to the State Department of Public Health by the local health boards or chief executive health officers. Further, it is the duty of every attending or consulting physician, nurse or other person having

* Hiscock, Ira V., *Community Health Organization*, page 98.

charge of or caring for any person afflicted with any of the said contagious diseases to report at once in writing to the local health officer.

In the city health department of Los Angeles the morbidity statistics for venereal diseases are kept in the quarantine division. Because of the interlocking of city territory with county territory it is very difficult to segregate morbidity reports to these respective departments. The problem of segregating city from county reports is not peculiar to the reports of venereal disease but this same difficulty is experienced in all communicable disease reports. At the present time, an effort is made by the various health departments in Los Angeles County to correct all reports received for residency of the patient.

The following table includes city resident cases of venereal disease under treatment by all medical sources reported to the city health department of Los Angeles for the calendar years 1929 to 1938, inclusive. Cases reported to the Los Angeles County Health Department but residing in the city of Los Angeles are included.

Calendar Year Morbidity Report*

Years	Syphilis	Gonorrhea	Ophthalmia Neonatorum	Estimated Population
1929-----	4,508	2,387	11	1,206,764
1930-----	4,348	2,507	2	1,238,048
1931-----	4,517	2,840	10	1,255,829
1932-----	5,914	3,469	5	1,283,850
1933-----	4,998	2,527	2	1,281,266
1934-----	5,556	4,341	2	1,293,329
1935-----	5,755	4,469	1	1,294,600
1936-----	4,956	4,227	2	1,301,474
1937-----	6,264	5,373	6	1,326,852
1938-----	7,765	4,642	5	1,422,036

* Calendar year used so that figures may be compared with state and national reports.

The standard forms supplied by the State Department of Public Health are used for reporting cases of venereal disease. Patients may be reported by name or initials and date of birth. The report includes the age, sex, race of the individual and stage of infection. Different colored cards are used to distinguish reports of the private physicians from the clinic reports. A copy of the reports are kept in the city health department only on cases reported by private physicians. In cases of venereal disease reported by clinics the only record is the number of the state report which is placed on the clinic chart. All original reports are sent to the State Department of Public Health. The city health department does not segregate the reports so as to show the percentage of cases reported by private physicians. From the county of Los Angeles including Los Angeles City, 10,244 cases of syphilis were reported to the State Department of Public Health in 1938. Of the 10,244 cases of syphilis reported, only 3,023 or 29.5 per cent were reported by the private physician as compared to 7,221 or 70.5 per cent reported by clinics. In the same area 49.1 per cent of 6,594 cases of gonorrhea were reported by private physicians as compared to 50.9 per cent reported by clinics. It has been shown in various surveys made throughout the United States that between 60 and 65 per cent of the cases of venereal diseases reported are reported as under the care of

a private physician. The city health department should make stronger efforts to stimulate better reporting by the private physicians. Reporting of venereal disease as shown in this table is increasing but further improvement should be sought.

No complete studies of the information furnished on the venereal disease morbidity cards are available in the city health department. An analysis of these cards should give the department considerable information. For example, the death certificates indicate a higher death rate of syphilis in the negro and Mexican populations. It is known that there is a greater venereal disease problem in negroes than whites, but this has not been thoroughly studied in this area. Responsibility for the collection of adequate morbidity reports and for complete analysis of the data furnished in the morbidity reports should be placed upon the venereal disease control officer.

Mortality

The following table of deaths from syphilis is taken from the city health department reports for the fiscal year ended June 30, 1938.

Classification of Death	Code No.	Total Deaths
Syphilis -----	(34)	164*
Aneurysm -----	(96)	96
Locomotor ataxia, Tabes Dorsalis -----	(80)	12
General paralysis of insane -----	(83)	14
Total -----		286

* 21 less than 1 year.

It is a well known fact that only a small percentage of individuals dying directly, or indirectly of syphilis, are reported as dying from syphilis; accordingly, while the above table only shows a small part of the actual picture, it does show that syphilis does kill people when it remains unrecognized and untreated. Syphilis recognized early and treated properly rarely ends in fatal complications.

During the same fiscal year (1938) there were a total of 7,537 new cases of syphilis reported and 5,248 new cases of gonorrhea.

Prevalence

There are no adequate means available to determine the actual number of persons in the city of Los Angeles infected with syphilis and gonorrhea. However, continuous study of morbidity reports and clinic activities should give some fundamental data in retrospect. Certain special studies on the subject would be of considerable value; for instance, it would seem highly desirable to determine by means of periodic surveys of all treatment sources, hospitals, clinics and private physicians, the number of cases of venereal disease actually under treatment in the city of Los Angeles on specified dates.

Drug Distribution

In the treatment of syphilis and gonorrhea, it should be the aim of a health department first to render cases of the disease noncommunicable and thus to prevent transmission of the disease and secondly, to cure the individual patient. Medical science has effective drugs for

this purpose. Health departments should have a supply of antisyphilitic drugs readily available for free distribution as necessary to all treatment sources, including private physicians as well as clinics.

Drugs used in the clinics of the city health department are purchased with the department's own funds. Accepted antisyphilitic drugs are available free from the State Department of Public Health for the treatment of indigent and part-pay patients provided the cases are reported to the health department on proper forms; these drugs are used by the Los Angeles City Health Department to supply only the private physicians. The drugs derived from the state are stocked in the city health department and from there are distributed by a special messenger (WPA help) to private physicians and a receipt is taken on delivery. Drugs distributed free to private physicians must be requested on standard state forms for that purpose. The original card is sent to the State Department of Public Health and a duplicate kept in the city health department files.

The total number of ampoules of antisyphilitic drugs supplied by the State Department of Public Health and delivered by the city health department to private physicians for the year January 1, 1938, to January 1, 1939, was as follows:

Drugs	Total Number of Ampoules	Size
Neolarsphenamine -----	2,770	0.45 grams
Neolarsphenamine -----	6,942	0.6 grams
Mapharsen -----	3,877	0.04 grams
Mapharsen -----	4,081	0.06 grams
Tryparsphenamide -----	759	2.00 grams
Tryparsphenamide -----	472	3.00 grams
Bismuth in oil -----	6,050	1.00 cc.
Bismuth in oil -----	600	60.00 cc.
Distilled H ₂ O -----	20,937	10.00 cc.
Bismarsen -----	62	0.2 grams

The total number of ampoules of drugs purchased by the city health department and used in the department's clinics during 1938 is shown in the following:

Drugs	Total Number of Ampoules	Size
Neolarsphenamine -----	1900	4.5 grams
Neolarsphenamine -----	20	4.5 grams
Neolarsphenamine -----	60	0.9 grams
Neolarsphenamine -----	20	0.6 grams

In addition bismuth sybsalicylate in olive oil is prepared in and supplied from the chemical laboratory of the city health department. The number of injections of this preparation of bismuth given in the various city health department venereal disease clinics is included in the next table.

Number of Patients and Visits to Venereal Disease Clinics for the Fiscal Year, 1937-1938

Name of clinic	New patients				Registrants—Total number of clinic				Visits for diagnosis or treatment				Reported as discontinuing treatment without permission			Num-ber of dark-field		
	Syphilis		Gonorrhea		Total	Non-venereal	Gonorrhea	Syphilis	Syphilis		Gonorrhea	Examinations	Total	Syphilis	Gonorrhea		Total	
	Congenital	Early	Late	Total					Arsphenamine	Bismuth								
Men's Central Clinic	69	273	548	1,176	1,554	1,681	3,848	7,200	11,156	26,971	18,222	1,792	74,278	743	1,087	1,830	15	372
Women's Central Clinic				890	300	1,340	455	4,874	6,902	16,922	3,717	12,111	39,652	433	153	586	0	128
Watts Health District Women's Clinic				31		54	8	128	165	681	102	239	1,187	8	1	9	0	0
Watts Health District Men's Clinic				43		70	36	204	625	1,134	435	506	2,700	33	22	55	0	0
San Pedro Health District Clinic				113		173	19	568	1,429	2,603	98	552	4,682	95	17	112	0	2
Van Nuys Health District Clinic				43		64	27	115	393	728	*15	128	1,264	6	5	11	0	1
Totals	69	273	548	2,296	188	1,922	2,226	13,089	20,670	49,039	22,889	31,465	123,763	1,318	1,285	2,603	15	503
Maternity Clinic**				90		161	0	2,505	2,666	788	983	0	417	2,357	51	0	51	0

* Incomplete.

** Not reported.

*** The treatment of syphilitic pregnant women who are residents of the city is accomplished by a clinic operated as part of the maternal health program of the Los Angeles County Health Department in which the city health department cooperates and assists.

Summary of Clinical Files of City Health Department *

Clinic Name	Number of Cases of Syphilis in Active File	Number of Patients that Have Received Over 20 Neoarsphenamine and the Equivalent in Bismuth	Number of Patients that Have Received Less than 20 Neoarsphenamine and 20 Bismuth but More than 7 Neoarsphenamine and 7 Bismuth	Number of Patients that Have Received Less than 7 Neoarsphenamine and 7 Bismuth
Men's Central Clinic-----	1,496	1,130	274	92
Women's Central Clinic-----	1,238	487	492	259
Watts Women's Venereal Disease Clinic -----	73	10	26	37
Watts Men's Venereal Disease Clinic -----	57	22	13	22
San Pedro Clinic-----	86	68	12	6
Van Nuys Clinic-----	113	53	41	19
Venice Clinic -----	56	27	23	6
West Los Angeles Clinic-----	44	17	12	15
Total -----	3,136	1,814	893	456

* As of May 1, 1939.

Clinic Facilities

The city health department has eight venereal disease clinics which are conducted directly under the supervision of the department. Two of these clinics are located in the central administrative building and the other six are scattered throughout the city in various district health offices. As shown in the preceding table the great majority of treatments are given at the central clinics. The following is a list of the clinics:

1. Women's Central Venereal Disease Clinic, Third Floor, 116 West Temple Street.
2. Men's Central Venereal Disease Clinic, Second Floor, 116 West Temple Street.
3. Watts District Venereal Disease Clinic, Watts City Hall, 10321 Compton Avenue.
4. San Pedro District Venereal Disease Clinic, San Pedro City Hall.
5. Wilmington District Venereal Disease Clinic, 212 West F Street, Wilmington.
6. Venice District Venereal Disease Clinic, Venice City Hall.
7. West Los Angeles District Venereal Disease Clinic, West Los Angeles City Hall.
8. Van Nuys District Venereal Disease Clinic, Van Nuys City Hall.

In addition to the above clinics of the city health department there are many other official and nonofficial agencies in the metropolitan area which administer treatment to patients infected with venereal disease; some of these clinics are in the city and there are also several in contiguous areas of the county. Many of the clinics operated by the non-official agencies report their activities directly to the State Department of Public Health; a discussion of these clinics will be given later in the report.

From a cursory review of the clinics listed it would seem that the city of Los Angeles is adequately provided with venereal disease clinics; however, an analysis of the city's population, and of the activities of the individual clinics, shows that there is a definite need for both decentralization and expansion of the existing venereal disease treatment facilities. There are areas of concentrated population which are

several miles distant from treatment facilities maintained for the patients who are unable to pay private physicians. Two notable areas in the city with large population and without venereal disease clinics are Hollywood and the negro district on and near downtown Central Avenue.

Many of these clinics have improved markedly in the past year and a half. There is need to further develop treatment facilities both centrally and in the district clinics. Provisions for darkfield examinations and spinal fluid examinations should be universally available in the central and in all health district clinics. There follows a brief discussion of the existing facilities at these clinics.

Women's Central Venereal Disease Clinic

The women's central venereal disease clinic is located on the third floor of the city health department building at 116 West Temple Street. There are five morning and five afternoon clinic sessions held each week but there are no evening clinics. The women's clinic treats women and also children under 14 years of age, who are infected with venereal disease and who are unable to pay for private medical care. There is no residence requirement for this or any other clinic supported by the city health department which, of course, is a very important step in the right direction for the control of venereal diseases, particularly in a city having such large floating and transient population groups. Considering that the space is small and inadequate and the halls are crowded with patients, there is a minimum amount of confusion in the clinic. Patients receive individual care from the clinic physicians and privacy is kept as well as the crowded quarters will permit. All treatments are administered by the physicians; the standard methods of treatment are skillfully used. Neoarsphenamine is the most common form of arsenical used and bismuth subsalicylate in oil is the most common heavy metal preparation used.

The procedure of routine spinal fluid examination of all cases of syphilis at the suggested optimum time was inaugurated in October, 1938. The services of darkfield examinations and fluoroscopic examinations are readily available. The interested reader is referred to the preceding table for detailed statistics on this phase of the clinic work.

Records of the history, physical examinations and treatments are accurate but the forms do not provide for the recording of all essential information; there is also a special form for the epidemiologic interviews of patients which are made on the day the first diagnosis is made but these are not complete and are not filled out in all cases. The records are used as an active follow-up or "tickler" file and if the patient misses one treatment a follow-up letter is sent immediately. If the second treatment week is missed and the case is an infectious one, a follow-up home call is made on the patient by a social worker.

The entire epidemiologic investigation as well as the follow-up of delinquent cases is carried on by the two follow-up workers who are trained in social service work. Only one of the social workers has a travel allowance, therefore, most of the actual field work in this division is carried out by the one worker who has a travel allowance. Some of this work is performed by workers in other divisions but this

is minimal because of their own heavy schedules of work. In view of the tremendous area to be covered in a city of this size, and the large clinic population to be served, it immediately becomes apparent how inadequate is the complete follow-up work with only two follow-up social workers available for these duties in the women's central clinic.

Some system should be worked out so that the follow-up work is integrated with the general follow-up activities of the public health nursing program; this would help materially. In any event, someone with definite supervisory authority must be made responsible to see that proper information is obtained from the patients and adequately recorded, and that correlated field activities are assigned to the proper nurse in the field. Such a program as this immediately calls for the services of a supervisory public health nurse who has had special training in venereal disease activities, to be assigned in charge of the entire follow-up activities of all the clinics in the city health department. A system such as this would not replace the proper activities of the follow-up social worker in the clinic; it would be necessary to continue to have specially trained workers in the large clinics to secure primary information from patients and to see that it was properly distributed to nurses in the field who would be responsible for carrying through on this follow-up work. In Los Angeles there is also a definite need in the program for male follow-up workers.

Men's Central Venereal Disease Clinic

The men's central venereal clinic is located on the second floor of the city health department building at 116 West Temple Street. It is the largest venereal disease clinic in the city of Los Angeles. The clinic personnel has been discussed earlier in this report under the title of personnel of the men's division of venereal disease control.

Most of the efforts of the men's division are spent in the administration and operation of this large central clinic. Clinics are held twice a day from Monday through Friday. While three of the afternoon clinics are held late in the afternoon, there is no evening clinic which is so necessary in a city of this size. The men's clinic treats all male patients, regardless of their legal residency, who are infected with a venereal disease and who are unable to pay a private physician.

The clinic space is inadequate. During the clinic hours the halls are crowded with large numbers of waiting patients and this, of course, lends to diminished privacy for the patients. Because of these large attendances, patients are hurriedly treated and records are not completely kept. The attending personnel is sympathetic and interested in their work but the number is entirely too small for the size of the clinic. However, an increase in personnel in the same quarters would not help materially to decrease the congestion of the clinic. There must either be a change in quarters with additional personnel, or an increase in the number of clinic sessions with additional personnel or an increase in the remuneration of the existing physicians for longer hours of work. When clinics become too large they lose their efficiency. Decentralization of treatment facilities would not only help alleviate the crowding but would also offer opportunities for treatment to individuals now living too far from this or any other existing clinic to keep up regular

treatment, which is so necessary to make the individual noninfectious and to achieve clinical cure.

The usual form of "continuous treatment" with arsenicals and heavy metals is used, except that the treatments are given more concentratedly than is usually recommended; that is, in early syphilis both neoarsphenamine and insoluble bismuth are given at the same time and the first series of neoarsphenamine consist of 20 weekly doses of neoarsphenamine. Neoarsphenamine is always given by the physicians but not infrequently the heavy metal is administered by a male nurse. Spinals are now performed routinely in the clinic.

The treatment of gonorrhea is well performed in the men's clinic. At present sulfanilamide is being used in moderately large doses. If on the third day of treatment any symptoms remain, adjunctive treatment is given. An attempt is made to obtain negative cultures and smears on all cases of gonorrhea before the case is discharged.

The follow-up activities in the men's clinic are carried out by the two male social workers and one male nurse. The work performed by these men is similar to the work carried out by the follow-up social workers in the women's clinic. All named female contacts are referred to the women's division for follow-up. With the assistance of the clerks, follow-up letters are sent to all delinquents when they first miss a treatment and if a patient misses two treatments, then a home visit is made by a social worker. At present there is some follow-up work performed for this division by the general public health nursing service; the amount actually performed by the nursing division as far as could be ascertained by inquiry, is small.

Watts District Venereal Disease Clinic

The Watts district venereal disease clinic is located in the Watts District Health Office and it has been maintained for the past several years. There are two day clinics each week for the men and two for the women. The men's clinic is attended by a competent part-time physician in the vicinity and the women's clinic is attended by one of the full-time physicians from the women's central clinic. The clinic space is adequate and treatment is modern and carried out in a way that gives the patient privacy. There is no equipment in the clinic to do darkfield examinations and spinals are not performed in this clinic.

There is no adequate regular system of follow-up or epidemiologic investigation of the patients. Information as to the number of contacts named or examined is not readily available. Some follow-up of male patients treated at this clinic is carried out at irregular intervals by a male social worker from the central clinic of the men's venereal disease division; because of the press of his duties in the central clinic, he only occasionally has an opportunity to work in the Watts clinic. A clerk from the central clinic travels to the Watts clinic for each men's clinic as there is no clerical help available in the Watts health office. The follow-up work performed in the Watts women's clinic is carried out by the general public health nursing staff of the district.

Records on the physical examination, medical history and treatment are kept on the regular city forms but there are no records of the follow-up work performed in this clinic.

District Clinics at San Pedro and Wilmington

The San Pedro and Wilmington districts comprise the harbor area of the city of Los Angeles and are about 22 miles from the central business district of the city. There is a population of about 45,000 in the San Pedro area, which has a high proportion of navy men, merchant seamen, longshoremen and fishermen. Many of these are cared for medically by various federal agencies.

The San Pedro Health District has two venereal disease clinics. The one in the city of San Pedro has been in operation for the past several years; the other clinic, which is in the Wilmington area, has only recently been established. Three day clinics in San Pedro and one in Wilmington are held each week. The clinics are held in a building provided locally for district health clinics and the quarters are adequate for present needs. The clinics at the time of writing this report are under the direct supervision of the district health officer. All patients infected with venereal disease who are unable to pay private physicians are eligible for treatment. The treatment carried out is the usual method; no spinals are performed in these clinics and no follow-up work of lapsed cases is made. A public health nurse is not regularly assigned to the San Pedro venereal disease clinic.

In an area such as San Pedro where there are several federal agencies available for the treatment of venereal disease cases among their beneficiaries and where the sources and contacts of the infections are mostly in the area, the work of these treatment agencies should be coordinated with that of the health department clinics. This has not been done and consequently many infectious contacts of patients under treatment by these agencies are not found and continue to go on infecting others in the community. There is also need in the San Pedro area to expand the treatment facilities of the city health department. A public health nurse with special training in venereal disease should be assigned to the San Pedro and Wilmington venereal disease clinics to assist in the epidemiologic investigation and follow-up of patients.

Statistical information concerning the San Pedro and Wilmington clinics has been presented in a preceding table.

Venice and West Los Angeles Venereal Disease Clinics

There has been a small venereal disease clinic operating in Venice Health District under the direct attention of its district health officer for the past four or five years. Because of a lack of personnel and consequent lack of time, records were not adequately kept. There is no record in the office as to the exact number of new patients admitted or the stage of their infection. There also is no record available of the exact number of treatments performed in the clinic during the fiscal year ended June 30, 1938. The record of follow-up work performed during that fiscal year likewise is not available.

During November, 1938, with the aid of the State Department of Public Health, the venereal disease clinic was reorganized and the clinic quarters were remodeled. During this same month, the branch venereal disease clinic in West Los Angeles was also developed. These clinics are under the supervision of a full-time physician and a public health nurse, both of whom have had special training in venereal dis-

case control. There is no clerical help available in the clinic, which is greatly needed, but it is not anticipated that a full-time clerk for the venereal disease clinic in this area is necessary. If a clerk with other duties in the city health department or health district office were available for part-time service in the clinic, the personnel for the clinic would meet the present demands.

Treatment in these clinics at the time of this survey is carried out in a very good manner. The number of patients attending the clinics since reorganization has actually doubled. The records used in this district are records supplied by the State Department of Public Health and they are adequate to meet the demands for recording adequate epidemiologic investigation as well as complete history, physical examinations and treatments.

Van Nuys District Venereal Disease Clinic

The venereal disease clinic in Van Nuys has been in operation for about four years. Until recently there was only one clinic session held each week. Information concerning the number of contacts named and examined, and data as to the number of cases lapsing from treatment and followed-up, is not available for the fiscal year ended June 30, 1938.

On or about October 1, 1938, with the aid of the State Department of Public Health, the city health department reorganized the venereal disease clinic in Van Nuys. The services of a full-time physician and public health nurse with special training in venereal disease control activities were made available. A new system of records has been instituted, but no clerk is available for the care of the records. It does not seem probable that an area such as Van Nuys will support a large enough clinic to warrant the employment of the full-time physician; however, this physician's services are being used and can continue to be used advantageously in other health districts in the city.

General Records

At present, the clinical records used differ in the various clinics of the city health department. From observation in all clinics, there appeared to be in many instances, a lack of essential information recorded on the individual clinic chart and there was not adequate space on the record form in use to provide for the adequate recording of this information. There should be a unification of records in all clinics operated under the city health department. The records should be of such a nature as to give ample space for the recording of a complete history, physical examination and pertinent epidemiologic information for all cases attending the clinic.

General Follow-up Work

The follow-up work in all venereal disease clinics in the city health department should be the sole responsibility and be under the immediate supervision of one person who should be a supervisory nurse of public health with special training in venereal disease control activities. This employee should be under the general supervision of the director of the public health nursing division and be assigned to liaison and coordinating duty under the immediate charge of the director of the division of venereal disease control and should be responsible for

the epidemiologic and follow-up activities of that division and for securing the follow-up work of venereal disease cases by field nurses of the division of public health nursing.

Male contacts reported in the women's venereal disease clinic are reported to the men's venereal disease clinic, and female contacts reported in the men's clinic are reported to the women's clinic for follow-up work. The number of contacts reported as correlated with those visited and examined is not available for the fiscal year reviewed. Recently a system to tabulate this information has been inaugurated. Placing the follow-up work of all the venereal disease treatment facilities under the coordination of one supervising public health nurse would serve to increase the efficiency of such a service.

Accurate records for the fiscal year ended June 30, 1938, in follow-up of lapsed cases and contacts are not available. While records are available to show the number of home visits and letters sent by the social workers to delinquent patients and to contacts, there is no recorded evidence to show the effectiveness of these activities. Furthermore in the public health nursing division, home visits to individuals infected with venereal disease are not segregated but these visits are tabulated under the general grouping of communicable disease visits.

Before concluding the general discussion of treatment facilities maintained for venereal diseases by the city health department, mention should be made of the existing difficulty in following-up a patient in the Los Angeles area. Because other governmental subdivisions are performing venereal disease control activities in thickly populated areas which are contiguous or adjacent to the city, a central patient "clearing-house" should be established to avoid unnecessary and sometimes dangerous duplication of treatments, as well as of other services; such an activity could well be included in the responsibilities of the proposed supervisory public health nurse for the follow-up activities of the city health department and similar work for the entire area could also be coordinated.

Other Venereal Disease Clinics in Los Angeles City

Mention should be made concerning outside agencies treating venereal diseases in the city of Los Angeles. A very important clinic in this group is the maternity center. This maternity center is located in the city health department building but it is a part of the Los Angeles County Hospital service in which the city health department is cooperating as it handles city cases. In this clinic, on admission all pregnant women are routinely examined, including a serologic test for syphilis. Those found to be infected with syphilis are placed under intensive treatment as soon as the diagnosis is made and treated according to standard modern methods up to the time of delivery; this treatment is well supervised and efficiently administered. Babies delivered from syphilitic mothers are followed-up by adequate examinations for a period of several weeks. The infected mother, following delivery is transferred to the women's central clinic in the city health department for further treatment.

The follow-up and epidemiologic investigation work in the maternity center is carried out by the division of public health nursing of the city health department. Actual statistics as to the number of patients actually visited for syphilis follow-up and the number of con-

tacts of the patients reported, examined, and found infected, are not available.

There are seven other clinics not associated with the city health department in which venereal diseases are treated in the city of Los Angeles which report directly to the State Department of Public Health. As of December 30, 1938, there were 1,894 cases of syphilis under treatment in the seven clinics. Most of the above clinics treat both free and part-pay patients. An analysis of individual charts and records of these clinics was not made in this survey. However, special attention was paid to amount of follow-up and epidemiologic work performed; most of these clinics had very little of such follow-up work; in no clinic was it as adequate as it should be in a well organized program.

There is little or no coordination and integration of the activities of these clinics with the activities of the city health department. It seems desirable that these clinics, which are participating in this major public health problem receive some assistance from the city health department both in their clinic activities and in their follow-up work; some arrangement should be worked out whereby the city health department will at least offer follow-up services in these clinics and perhaps free drugs as well for their non-pay and part-pay patients.

Performance

A preceding table gives the number of new patients that have been examined and/or treated in the city health department venereal disease clinics. Syphilis was not recorded in the monthly reports as to the stage of the disease until the last six months of the fiscal year 1937-1938. However, an analysis of the calendar year 1938 reveals that out of the six clinics in the city health department reporting regularly, five were segregating their reports so as to denote congenital, early and late syphilis. In these clinics there were reported 2,508 new cases of syphilis during the calendar year 1938; 99 cases or 3.9 per cent were congenital; 882 cases or 35.2 per cent were early and 1,527 cases or 60.9 per cent were late. It is hoped that with increasing public consciousness of syphilis, the percentage of early cases receiving treatment will increase.

The clinic registry which includes the maternity center due to its close connection with the city health department program, shows that about 252 cases of syphilis are registered in the clinic per 100,000 population of the city, which is considerably lower than the standard in the American Public Health Association appraisal form (400 cases per 100,000 population).

There were approximately 159 cases of gonorrhea registered in the clinic per 100,000 population during the fiscal year studied—this is higher than that given in the standard in the appraisal form (100 per 100,000 population).

Spinal Fluid Examination

It was found that no venereal disease clinic in the city health department was making examination of the spinal fluids as a routine for all patients during the fiscal year studied; only 15 spinals were performed in 2,296 cases of syphilis registered and treated in the clinics of the city health department. Spinal fluid examination is an essential

procedure in the management of syphilis. In the past few months, however, definite efforts have been made to carry out this procedure; this procedure at the time of writing this report is now routine in the men's and women's central clinics only; it should also be made available for all of the health district clinics.

Of the total 5,759 venereal disease patients registered in the city health department clinics listed in the preceding table, 2,654 or 46 per cent of the patients were reported as discontinuing treatment without permission; the number of actual or potentially infectious cases among these is not recorded. Special emphasis should be given to the follow-up of the lapsed infectious cases; the follow-up services should not only be performed on clinic patients but it is recommended that such follow-up services be offered by the city health department to practicing physicians, with due regard to privacy and professional secrecy.

In a study of the active syphilis file as of May 1, 1939, there were found 3,163 cases of syphilis in the active file; 1,814 or 57 per cent had received more than 20 injections of neoarsphenamine with heavy metal. It would appear that the efforts to keep these cases under treatment for long periods of time were successful; however, on analysis of the individual case records, there is evidence of long lapses between treatments which, especially in early syphilis, interferes with the effectiveness of the treatment.

Hospital Facilities for Patients Infected With Venereal Disease

The exact number of beds available for the hospitalization of venereal disease cases could not be determined. However, at present, beds for individuals in need of hospitalization are available at the Los Angeles County Hospital when requested. Provision for hospitalization includes both isolation of infectious cases or treatment of severe complications of syphilis or gonorrhea; the facilities available for non-specific treatment in the form of fever therapy for neurosyphilis are not adequate. Some provision should be made with the county hospital or other agency to give special fever treatment to those patients where this form of treatment is indicated.

Laboratory Service For Venereal Disease Control

The public health laboratory of the city health department which has been discussed in another section of this report, offers the following venereal disease examinations to all treatment sources maintained by the health department and to the private physicians in the city of Los Angeles:

1. Blood serologic tests for syphilis;
2. Spinal fluid examinations;
3. Darkfield examinations;
4. Gonococcus smears;
5. Gonococcus cultures.

There are twenty-five collection systems maintained throughout the city for the convenience of private physicians to deposit specimens for examination.

The public health laboratory of the city health department is approved by the State Department of Public Health. The calendar

year report for three years is used in the following table in order to show the increase in the amount of work performed in the laboratory during that period:

Laboratory Examinations for Venereal Disease Control Activities

	1936	1937	1938
Blood tests:			
Wassermann (Kolmar technique)-----	24,373	30,292	38,707
Kahn -----	590	8,203	32,719
Laughlin -----	0	217	24,373
Gonococcus smears -----	24,666	30,189	33,906
Gonococcus cultures -----	0	72	688
Darkfield examinations -----	225	366	718
Trichomonas vaginalis smears-----	0	24	212

However, the various serologic tests used in the health department have not been evaluated.

It is recommended by the Committee on Evaluation of Serodiagnostic Test for Syphilis that the technical procedures described by the originators of reliable serologic tests for syphilis should be followed in every detail. Only tests that have been properly and critically evaluated should be used in laboratories where limitation of funds, personnel, and equipment does not permit the proper pursuit of serologic research.

Educational Activities

The various members of the city health department are available for public lectures on venereal disease, on request; while the department has been so requested on numerous occasions during the past two years, there is no record kept of actual engagements. The health department has also prepared and distributed literature on syphilis and gonorrhea but no record is available of the exact number distributed during the fiscal year studied in this survey.

Some effort is made by the venereal disease divisions to advise the infected individuals as to the nature and contagiousness of their infection by means of printed material and personal instruction. This work has shown improvement over the past two years; however, additional trained personnel is needed to further advance this part of the program.

The preparation and dissemination of educational material regarding the venereal diseases is highly important. The director and the supervisory public health nurse for venereal diseases should share responsibility for this activity and the director should be responsible for the instruction of the entire division staff.

Recommendations

It is recommended:

1. That the administration of all venereal disease control activities in the Los Angeles City Health Department be consolidated into one division under the direction of a well qualified full-time venereal disease control officer who is trained and experienced in the treatment and control of venereal diseases, as well as trained and experienced in public health administration.

2. That additional funds be made available to increase the permanent personnel in the venereal disease division so that the actual and the recommended routine functions of the division may be independent of assistance derived from temporary federal relief projects; adequate funds would necessitate trebling the budget of the fiscal year surveyed.

3. That the existing venereal disease treatment facilities be expanded, including the development of additional treatment officers in concentrated population districts which are not now served by local treatment facilities.

4. That consideration be given to supplementing the present facilities for treatment of venereal diseases by subsidizing existing polyclinics of those unofficial agencies which are suitably located and are willing to meet minimum standards of efficiency conforming to the general city, state and national policies.

5. That free laboratory and clinical diagnostic service, free anti-syphilitic drugs, and free follow-up services for the purpose of finding contacts and returning lapsed cases, be extended by the city health department on request to private physicians with due regard to privacy and professional secrecy.

6. That a patient "clearing-house" be established for the entire metropolitan area including the city and county of Los Angeles to avoid unnecessary and sometimes dangerous duplication of medical service and to coordinate the overlapping follow-up activities in the entire area.

7. That a uniform record system be adopted and used in all clinics operated by the city health department. The records should be of such a nature as to give ample space for the recording of a complete history, physical examination and pertinent epidemiological information.

8. That the full-time director of the division of venereal disease control be responsible for the collection of adequate morbidity reports and for maintaining a current and complete analysis of the data furnished in the morbidity reports.

9. That provision be made to coordinate the epidemiologic investigation and follow-up work for all venereal disease treatment sources maintained by the city health department under the immediate supervision of a consultant public health nurse who has had special training in venereal disease control activities. This nurse should be responsible to the director of the public health nursing division and assigned to the division of venereal disease control under the immediate direction of its director.

10. That venereal disease follow-up field work be done routinely by the public health nurses in their respective districts. Especially trained public health workers who are responsible for epidemiologic investigations and education of the patient in the large clinics should be responsible for referring these cases to the supervisory public health nursing consultant for the appropriate distribution of cases to the field nurses.

11. That a study be made of all treatment sources (hospitals, clinics, and private physicians) to determine the extent of the entire venereal disease problem in the city of Los Angeles and to coordinate the respective activities of such treatment sources with those of the city health department.

12. That physical arrangements be made in all the clinics to insure privacy for the patients when receiving medical care and that all clinics be supplied with the minimum diagnostic facilities of a good medical out-patient clinic; such equipment should include equipment for dark-field examination, ophthalmologic examination, and for lumbar punctures.

13. That the public health laboratory of the city health department make arrangements for periodic evaluation of their serologic tests by comparative examinations of specimens with the laboratory of the State Department of Public Health and/or some other public health laboratory which has recently been evaluated in the serodiagnostic evaluation studies made in cooperation with the U. S. Public Health Service and has been found to be satisfactory and for the frequent checking of serologic results against known clinical diagnoses preferably in a good syphilis clinic.

14. That an opportunity for special training in venereal disease control activities be provided for the professional personnel in the division responsible for the treatment, epidemiologic investigation and follow-up work.

15. That the division of venereal disease control be responsible for the conduct of a more intensive educational program of the public, the patient and the private physician.

16. That a local advisory committee to the division of venereal disease control of the city health department be organized under the leadership of the full-time director of the division; the members of such a committee should include representatives from the medical and allied professions and voluntary social and treatment agencies.

PUBLIC HEALTH LABORATORY

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History

The first laboratory facilities in the city health department were provided in 1894 following the passage by the city council of a new sanitary milk ordinance aimed primarily at adulterants. Dr. L. M. Powers, the city health officer, was successful in getting permission to utilize space in the attic of the city hall for the purpose and is credited with having personally provided its equipment and with doing his own laboratory work.

In 1903 the city council passed a pure food ordinance and made a contract with a commercial firm of chemists for the performance of analysis of food products offered for public sale. The following year, 1904, the city council authorized the city health department to employ a bacteriologist and a chemist to make these analyses; a division of the laboratory work then developed which persists to the present day. In fact, up until about 1925 the city health department maintained two laboratories—one for bacteriology and one for chemistry. At that time, a laboratory worker competent to do plague work was employed; he was also skilled and experienced in general public health laboratory procedures and subsequently was named the director of both of the laboratories while their former heads remained in immediate charge of the activities of their respective divisions. The director apparently has been unable to weld and unify the activities of the two divisions through lack of support higher up, on the one hand, and passive resistance in subordinates, on the other.

Legal Authority

The public health laboratory of the city health department is established under the provisions of Division I, Chapter 7, of the Health and Safety Code of the State of California (original legislation was an act approved April 29, 1927):

CHAPTER 7. MUNICIPAL AND COUNTY LABORATORIES.

1000. For the purpose of protecting the community against infectious disease, any city or county may establish a bacteriological and chemical laboratory for the examination of specimens from suspected cases of disease and for the examination of milk, waters and food products.

1001. The cost of establishment and maintenance of the laboratory is a legal expenditure from any city or county funds that are for disbursement under the direction of the city or county health officer for the protection of public health.

1002. Any city or county laboratory established for the purposes set forth in this chapter shall use only equipment and employ only technical personnel that meets with the approval of the state department (of public health).

The provisions of Division II, Chapter 1 of the Health and Safety Code of the State of California also are applied to public health labora-

tories, both private and governmental, inasmuch as such laboratories are held to come within the definition of section 1202 thereof as being "an establishment or institution operated for the purpose of furnishing or taking part in the diagnosis or determination of progress of disease." This chapter of the Health and Safety Code places supervision and licensing of public health laboratories (as "clinics") under the State Department of Public Health and the State Board of Public Health has promulgated regulations governing the licensing and operation of such laboratories. These regulations require the personnel employed in such laboratories to possess specified qualifications and a license to engage in such activities. The following are the regulations in this regard:

- "1. A clinical laboratory is any place or establishment where any tests, no matter how limited in variety are made for the investigation of the existence or progress of disease.
2. A technologist is a person who directs a laboratory and who holds a license as a technologist.
3. A technician is a person who holds a license as technician and who works under the direction of a technologist or of a licensed physician and surgeon.
4. After January 1, 1938, no one may conduct a clinical laboratory unless he is either a technologist or a licensed physician and surgeon.
5. After January 1, 1938, no one may work in a clinical laboratory unless he is a technologist, a technician or an apprentice.
6. A person may acquire a license as a technologist without examination provided he has had five years experience actually directing and at the time working in clinical laboratories, all of which were completely equipped for, and doing work in all of the sciences of bacteriology, serology, biochemistry, parasitology and related subjects, the last year of which immediately preceding the passage of the act must have been in California and provided further that he makes application for the license before January 1, 1938.
7. A technologist's license may be secured by examination, further requirements being that he hold a bachelor's degree in one or more of the fundamental sciences pertaining to laboratory work, from a recognized institution and that he also possess five years experience, one year of which has been as chief technician in a laboratory, all laboratories being of grade and standard acceptable to the Board of Public Health.
8. Certificates of licensure for clinical laboratory work of limited range will be issued without examination as provided in section 4 of Chapter 804 (Statutes of 1937), to persons presenting evidence of experience in any phase of clinical laboratory work, totaling three years, had within the period of five years immediately preceding the effective date of the act, one year of which shall have been in laboratories within the State of California. Such certificates will be issued one for each of the general divisions of the work, i.e., bacteriology, serology, biochemistry and hematology, and in special and particular instances may be

issued for still more limited fields of activity, in which case the certificate will set forth particular tests that may be practiced. The certificates issued under this provision will carry the statement that the license is issued without examination, under the provisions of section 4 of the law. Graduates of a university recognized by the board, who hold the A.B. degree secured with a major in one of the medical sciences, will be credited with the first two years of the required experience, but one year's practical experience in an acceptable laboratory in California must be shown.

Application for technicians' licenses without examination must be made before January 1, 1938.

The fee for a technician's license without examination is one dollar, payable with application. The fee will be returned if the application is rejected.

9. Certificates will be issued to technicians by examination, each certificate entitling the holder to receive a license permitting him to engage in the work covered by the certificate.

Besides separate certificates in bacteriology, serology, biochemistry and parasitology, one all-inclusive certificate called senior clinical laboratory technician will be issued by examination, which certificate entitles its holder to be licensed to engage in all the work of a clinical laboratory.

10. All persons believing themselves eligible to receive any sort of license without examination should immediately write to the State Division of Laboratories, Berkeley, requesting forms on which to apply for the license. Owing to the short time remaining before January 1st, where it appears impossible to complete the necessary investigation preliminary to the issuance of a license, a temporary license revocable at any time will be issued. Such temporary licenses must be replaced by permanent licenses before July 1, 1938.

11. Fees. (Rule 14 of regulations)

(a) Clinical Laboratory Technologists.

The fee for the certificate of license as clinical laboratory technologist shall be \$10, payable with application for license without examination. If the applicant is found ineligible the fee will be returned. The fee for examination for the certificate as clinical laboratory technologist shall be \$5, payable with application and not returnable in case of failure. If the applicant passes, an additional \$5 must be paid before the certificate is issued. The annual renewal fee for license as clinical laboratory technologist shall be \$10 for each year following the calendar year in which the certificate was issued, and payable within sixty days after the commencement of each calendar year.

(b) Senior Clinical Laboratory Technicians.

The fee for the examination and the certificate as senior clinical laboratory technician shall be \$5, payable with application and not returnable in case of failure. The license as senior clinical laboratory technician is good for the remainder of the calendar year in which issued, and must be renewed annually by the payment of a fee of \$2 within sixty days after the com-

mencement of each calendar year. A certificate as senior clinical laboratory technician will be issued without examination, but on the payment of the fee of \$5, to all persons holding the four certificates of proficiency (senior grade in the old series) issued by the board. In cases where an examination has been paid for in the securing of individual certificates, credit for such payments will apply on the fee for the issuance of the full certificate as senior clinical laboratory technician.

(c) *Certificates of Proficiency.*

These certificates, one in each of the subjects of bacteriology, serology, biochemistry and parasitology, will be issued by examination in these subjects separately. The fee for the examination in any one subject and for the certificate and license good for the remainder of the calendar year is \$2, not returnable in case of failure.

Persons now holding one or more certificates of proficiency, will be issued licenses for the activities covered by the certificates which they hold. If an application for license without examination is filed, it may be found possible to include in the license issued, other activities not covered by the certificate of proficiency held by the applicant.

A license in parasitology is given only by examination. The license as senior clinical laboratory technician is not given without examination except to holders of four certificates.

12. The law does not require technicians working in a doctor's office to be licensed, unless work is done for other doctors or for the patients of other doctors.
13. The exemption of nonprofit hospitals, provided for in section 6 of the law applies only to hospitals maintained by corporations for the benefit of their own employees, the hospitals being supported by "dues or contributions from employees of a common employer, or a group of affiliated employers * * *."
14. The renewal fee for certificates of proficiency is 50 cents each, payable annually. A pocket license card is issued upon payment of the fee. Renewals and licenses for 1938 will be ready for distribution early in November.
15. Holders of four certificates of proficiency may exchange them for a senior clinical laboratory technician's certificate, or, if they meet certain other requirements, for a technologist's license.

Location and Physical Structure

The laboratory is located on the ninth, first and first mezzanine floors and on the roof of the city health department office building at 116 Temple Street, Los Angeles, California. It is distributed through small rooms originally designed for office purposes and in a temporary structure erected on the roof. Window lighting and ventilation are ample on the ninth floor but some portions of the rooms are subjected to marked glare, though the walls and ceiling are dingy. The windows are constructed with swing-out sashes whose adjustment for ventilation interferes with the adjustments of the window shades and lighting. The inner depths of some of the larger rooms are not naturally lighted sufficiently to promote the efficient execution of all necessary technical

procedures. Plumbing is lacking in some rooms on the ninth floor. Neither the natural window, nor the artificial, lighting is adequate for the activities carried on in rooms on the first mezzanine floor; though these rooms are used for the detection of plague in rodents, they are inadequately screened with window screens which have weathered and accumulated much dirt and they have doors which are ill-fitting and without effective automatic closing devices.

The total floor space available is probably a minimum in which the present volume of work can be carried out, but its arrangement (size of rooms and multiple floor locations, together with some lack of plumbing) causes it to be in fact inadequate, impractical of good supervision and subjected to undesirable traffic and consequent disorder.

Activities

The laboratory examines specimens from suspected cases of disease, and samples of milk, waters and food products. In addition to these, it makes clinical microscopic examinations to assist clinicians in the clinics in determining the types and stages of disease, and prepares medicaments for these physicians and biologicals for the treatment of rabies and for prevention of diphtheria. The manufacture of biologicals under license of the State of California had been temporarily discontinued at the time of this survey. A clinic is also conducted within the laboratory for the treatment of individuals bitten by rabid animals. The volume of the various, and total examinations made is reflected in the report of the current month (June, 1939), and in the annual report of 1938.

Summary of the Activities of the Public Health Laboratory of the City Health Department for the Fiscal Year Ended June 30, 1938, and for the Current Month of June, 1939

	Total for 1938	No. for June, 1939
Diphtheria cultures	29,245	1,277
Diphtheria virulence tests.....	335	25
Throat cultures for streptococci.....	780	63
Vincent's angina.....	471	31
Trichomonas vaginalis.....	75	6
Gonococcus smears.....	32,592	2,960
Gonococcus cultures.....	91	144
Wassermann tests.....	35,990	4,477
Kahn precipitation tests.....	24,772	4,236
Laughlin tests.....	5,241	321
Dark-field examinations.....	524	82
Typhoid and paratyphoid agglutination tests.....	626	66
Undulant fever agglutination tests.....	304	67
Tularemia agglutination tests.....	42	8
Typhus agglutination tests.....	24	24
Feces and urine cultures.....	2,472	171
Feces for amoebic and bacillary dysentery.....	48	11
Tuberculosis sputum examinations.....	5,534	651
Pneumococcus typing—sputum.....	52	2
Autogenous vaccines.....	12	0
Rabies—dog head examinations.....	313	7
Rabies treatments.....	607	9
Rabies interviews.....	491	55
Rabies vaccine prepared (20 cc. vials).....	889	0
Animal inoculation for tuberculosis.....	18	0
Milk microscopic sediment examinations.....	2,185	0
Milk and dairy products (bacteriologic plate counts).....	48,789	4,211
Milk and dairy products (chemical for butter fat, etc.).....	7,696	726
Ice cream (chemical and bacteriologic).....	7,814	827
Egg samples.....	48	0
Water analyses—bacteriologic (swimming pools).....	1,519	180
Water analyses—bacteriologic (drinking waters).....	3,054	275
Water analyses—bacteriologic (sewage, etc.).....	101	7
Beverages and bottled water.....	744	34
Germicide tests.....	12	0
Rodents examined.....	23,951	614
Blood counts.....	443	19
Meningitis (spinal fluids).....	77	0
Spinal fluid—cell counts.....	0	107
Spinal fluid—globulin.....	0	114
Spinal fluid—Lange.....	0	114
Urinalyses (chemical and microscopic).....	8,969	1,226
Foods for food poisoning (chemical and bacteriologic).....	450	36
Foods for adulteration (chemical and bacteriologic).....	3,044	436
Liquor examinations.....	13	0
Leprosy.....	2	2
Miscellaneous agglutination tests.....	133	8
Miscellaneous examinations.....	178	25
Relapsing fever.....	4	0
Malaria.....	2	0
Total examinations.....	250,776	23,634

It is to be noted that approximately 30,000 specimens were examined by sero-diagnostic tests for syphilis in 1938, and 4,400 in the current month, or an equivalent current annual rate of approximately

52,000 specimens and 104,000 tests; these represent between 25 and 30 per cent of all nonclinical examinations. It will also be noted that between 4,000 and 5,000 milk product samples are examined monthly by bacteriological counts and by chemical determinations, together with approximately 500 chemical examinations other than urinalysis.

Budget

The city budget for the fiscal year ended June 30, 1938, included \$27,720 for personnel, \$4,500 for current maintenance, and \$1,050 for equipment, a total of \$33,270. Maximum salaries for some grades seem low in comparison to that paid by the State Public Health Laboratory, but a limited provision is made under the city civil service system for regular periodic advancements which are conducive to high morale in the performance of duty.

Personnel

The laboratory is conducted by a director and ten technical assistants, a clerk and two janitors, all of whom are civil service employees. One additional bacteriological technician is paid by federal funds allocated to the state and seven other workers are loaned by the Federal Works Progress Administration.

The following summarizes the personnel set-up (city budget):

1 director—\$3,600 per annum

Bacteriology Section

1 chief bacteriologist, \$2,040 per annum

1 senior bacteriologist,
----- \$2,220 per annum

3 junior bacteriologists,
----- \$1,800 per annum

2 laboratory assistants,
----- \$1,620 per annum

1 clerk, \$1,320 per annum

2 janitors, 1,500 per annum

Chemistry Section

1 chief chemist, ---- \$2,820 per annum

2 senior chemists, -- 2,040 per annum

Additional

1 bacteriological technician (serology—paid from state funds)

7 bacteriological workers (paid from federal WPA funds)

1 sanitary inspector (loaned from rodent control division)

The director is a doctor of pharmacy and is regarded to be adequately qualified to execute his scientific duties by academic, scientific and practical training and diversified experience in teaching, hospital laboratories and public health laboratories, including an unusual experience in the latter in the diagnosis of plague in rodents. He has conducted research work and has been considered qualified by the state to manufacture specified biologicals.

The chief bacteriologist is regarded to be professionally qualified to execute the duties of this position; she is a doctor of medicine and has had long practical experience in private and public health laboratories and is in immediate charge of the bacteriological division. The senior bacteriologist has had ample training and experience to execute limited assignments but does not have a state certificate of proficiency nor training and experience in subjects in which the incumbent of this position should be qualified. The bacteriological technician (furnished by the state) has had academic and scientific training which should

equip him to carry out his duties and he holds a state certificate of senior grade.

There are three junior bacteriologists. One of these holds a state certificate of senior grade, one holds a limited certificate in bacteriology only and one holds a limited certificate in serology and bacteriology. The junior bacteriologist now conducting the sero-diagnostic tests for syphilis apparently has had a long training and experience which has qualified her to execute these tests. She and her assistant, a junior bacteriologist, both hold state certificates of proficiency in serology. One laboratory assistant now making bacteriological examinations of milk seems well qualified to carry out that assignment, and holds a state certificate of proficiency in dairy bacteriology. One laboratory assistant now assigned to the preparation of media does not seem qualified to prepare other than simple media, and does not hold a state certificate of proficiency in any subject.

One sanitary inspector seems qualified by academic and practical experience to carry out the assigned duties of an assistant in the detection of plague, and seems qualified by practical experience to make the assigned bacteriological examinations of water but he does not hold a state certificate in bacteriology.

The chief chemist and his two assistants (senior chemists) seem adequately qualified by academic, scientific, and practical training and experience to conduct the chemical examinations required.

The individuals loaned from time to time by the Works Project Administration have had only casual technical training in this laboratory.

It would appear that all technical personnel should hold state certificates of proficiency at least in the work to which they are assigned, or eligible for assignment. However, the qualifications prescribed by the city civil service for senior bacteriologist (Code No. 5107-M) and for assistant bacteriologist (Code No. 5106) both of which are understood to have been approved by the board of health commissioners and the city health officer, do not clearly include or incorporate the full requirements of the State Department of Public Health for the performance of the scope of the duties outlined in detail therein; for example: these duties are described to include the performance of sero-diagnostic tests for syphilis, but the qualifications only require the possession of a state certificate of proficiency in bacteriology, whereas the State Department of Public Health regulations would require anyone participating in serological procedures to hold a certificate of proficiency in serology.

Practically all these full-time technicians are carrying a volume of work which necessitates hurried procedures to clear the day's accumulation. The impression was obtained that the morale of the personnel was disturbed. Three of the technicians were dissatisfied with their assignments, and though officially recognizing the director perfunctorily, seemed to maintain a first loyalty to the chief bacteriologist.

The chief bacteriologist seemed to consider primarily with respect to her personal convenience, the internal physical arrangement of the laboratory, the determination of her part-time period to be served in the laboratory, and the conduct of the antirabies clinic. Furthermore

she consults the city health officer directly on matters pertaining to the laboratory administration without going through the director. The chief bacteriologist gave as the duties of the position: "Supervision of sero-diagnosis of syphilis; checking of the microscopy of gonorrhea and diphtheria diagnosis; microscopic diagnosis of rabies; conduct of the clinic for antirabies treatment." It was noted that with the exception of the diagnosis of rabies, all these diagnostic activities were carried out in whole or in large part during the hours in which she was absent, and occasionally during these absences the antirabies treatment was administered by a technician at the direction of the chief bacteriologist.

Smooth functioning was further disturbed by the irregularity of hours of duty and the uncertainty of continuous employment of the individuals loaned by the Works Progress Administration.

The following observations are made in respect to the technique followed in the laboratory:

Diphtheria—Specimens are sorted and identified by a washroom "night" man without the supervision of any responsible technical employee. They are examined microscopically in a hurried manner (estimated by the responsible technicians as 100 in 90 minutes). The composite tests for virulence are performed in such large multiples on guinea pigs that, it was observed, the results are sometimes not well defined. The impression was obtained that the diagnoses of "diphtheria positive" requires closer supervision.

Gonococcus—The identification and staining of these specimens was done by an untrained employee of the Work Projects Administration, and the examination was hurried in order to clear the day's volume of work.

Sero-diagnosis of Syphilis—All specimens are examined by a complement fixation test and by a precipitation test. The daily volume reached 400 specimens during the period of this survey. These tests are executed by two technicians who, though experienced, are rushed and obliged to manually transcribe their own records with very little clerical help, and to use equipment which is inadequate, improperly designed and disadvantageously located, thus increasing the hazards of error. Reagents are purchased, or prepared and standardized, by the director against those of reliable commercial houses. Copies of the recent developments of the standard techniques of these tests were not available, and some modifications are practiced. The ultimate effect of these modifications can be determined only by prolonged investigations with the cooperation of clinicians. The absence of either serologist from duty for any cause results in postponement of the tests, or in long overtime work.

Water Bacteriology—The bacteriological examination of water is carried out by testing small samples (2-10 c.c., 2-1 c.c., and 2-0 c.c. portions). While this method conserves time and media in comparison with that found by the U. S. Treasury Department as acceptable and recommended for safeguarding drinking water, the latter should be adhered to.

Milk Bacteriology—The bacteriological examination of milk is carried on under the handicap of inadequate personnel and facilities for the volume of work attempted. This procedure seemed to be functioning reasonably satisfactorily during the period of this survey, but it

was noted that this was dependent upon the one experienced operator for whom there is no adequate reserve, and who drives at remarkable speed with obsolete and inadequate equipment and supplies, and thus is unduly subject to error.

Chemistry—The chemists on duty seemed to be carrying out a suitable technique, but amidst disorderly and dirty apparatus and surroundings which frequently contribute to laxity or careless methods, and to errors.

Darkfield Examinations are carried on in a very small, poorly ventilated niche or vestibule to an examining room, and without a schedule. The technician is interrupted repeatedly in the performance of other essential technique which requires close and undivided attention to avoid error, and which, in consequence, must be delayed or repeated.

Manufacture of Biologicals—A separate clean laboratory is equipped and designed for these processes which are executed by the director in the absence of available trained assistants. The methods in use, and the products (rabies vaccine, diphtheria toxoid) have received the approval of the state, but manufacture was not practiced during the period of this survey.

Records—The method of keeping records involves a large amount of manual transcription on work sheets (which are not uniform), report sheets, and in ledger books. Much of this work is performed by the technicians themselves. Some reports are left on an open hook file available to the scrutiny of the public during the absence of the one clerk from her office.

A file is maintained for the "Quarantine Inspection Division of the Department" which apparently depends upon the laboratory, in part, for its bookkeeping. The report sheets are awkward to file, and the files are inadequate in size and disadvantageously located in the clinic office, adjoining that of the clerk, and is inaccessible to the clerk during the periods of its active sessions.

General—Technicians are frequently interrupted in the orderly conduct of their work by demands from clinical divisions for immediate examinations.

Laboratory supplies, vaccines, diagnostic sera and specimens for toxicological examination are kept in a refrigerator in the clerk's room, open to and visited by numerous individuals other than laboratory personnel during the absence of the clerk from her office, both before, after and during official hours.

There is an inordinate amount of traffic through the laboratory due in part to its arrangement, and laboratory rooms are used as dressing rooms for women technicians and clerks.

Inadequate storage and the lack of a keeper of stores precludes the proper custody and accounting of stores and supplies, and results in the piling up of records in out-of-the-way locations. Within laboratory rooms, apparatus when not in use must sit on the floor or be piled on the working space of benches.

Construction of the animal house on the roof without floor drains and proper pens, causes almost insurmountable hardships to proper maintenance and has resulted in the escape of animals, and in the isolation of those used in the manufacture of biologicals within an undesir-

able proximity to the laboratory animals used for the detection of plague.

Reference books are borrowed from the branch of the city library but neither these nor scientific journals are readily available to the scientific personnel within the laboratory during official hours.

The main bacteriological laboratories on the ninth floor and that portion located on the first floor are reasonably clean. In comparison, the chemical laboratories on the ninth floor, the animal house on the roof, and portions located on the first mezzanine floor are unnecessarily dirty. The room for the detection of plague does not lend itself to proper cleaning with facility because of lack of floor drains. The animal room is not well cleaned.

Equipment and Supplies

Equipment and supplies are obsolete, inadequate and/or disadvantageously located. To particularize to some degree: Milk and water bacteriology; the incubator used is constructed in a manner which results in wide variations in temperature maintenance in its different portions; the door on the incubator used for "holding" media will not remain fastened except by rubber bands; the hot-air sterilizer is not equipped with a thermometer and sterilization is accomplished by practiced guess-work; the supply of glassware is too small to permit of proper cleaning between its usages; the counts of plates are made by holding a magnifying glass in the hand which must be individually adjusted over plates. Serology; the water baths are small, uncovered and do not maintain a constant temperature in all parts of the bath; racks for the complement-fixation tests and for the precipitation tests are not designed for rapid accurate work; the tubes used in the precipitation test are scratched or etched to a degree which interferes with reading the results; all pipetting is done by hand in the absence of automatic pipettes. General: the refrigeration space is inadequate to accommodate the volume of work to be done with suitable segregation of processes or for the safety of specimens involving toxicological investigation; labor-saving devices are not furnished to save washing of glassware by hand; bench space is inadequate in extent and design, and storage in the work benches, or tables used as work benches, is improvised by patchwork; storage cases are inadequate or nonexistent; sinks are too small, and are either hand basins or absent in all biological rooms but the washroom, one laboratory room and the biologics room.

Comments and Recommendations

The general impression obtained of this laboratory is that it is attempting to carry a volume of work which exceeds its physical and personnel facilities, and that its administration and morale are disturbed by an unofficial division of authority in its internal administration, and by an uncertainty of the extent or force of the authority of the director which will be supported by his administrative superior within the laboratory or in his effort to cooperate with other divisions of the city health department.

The laws and regulations of the state and city enable the board of health commissioners to provide laboratory service for the protection of the health of the public of the city, and standards have been established to assist in accomplishing that purpose.

It is therefore recommended that the physical plant be revised, modified, and increased, and the personnel be adjusted and augmented to meet the requirements of careful, efficient work in the present and expanding volume of work; or that the plant be revised, the personnel adjusted and both the present and expanding demands on the present laboratory facilities be curtailed to a degree which will allow of an unhurried execution of the work carefully and efficiently.

Integrity, high professional standards and a cooperative spirit with the director of a laboratory are considered to be the most important single factors in the development of its efficient service. He should be clothed and supported with undisputed authority within the laboratory and should be responsible for its internal administration and for the work of his assistants.

It is recommended that the director, who appears to meet the above-mentioned qualifications, be given the authority and responsibility indicated. To effect this, it is believed necessary that only full-time personnel who are subject to but one authority for salary grade and assignment to duty be employed in the laboratory; that the qualifications, efficiency, and adaptability of employees in the performance of assigned duties of the laboratory be determined by the director in consonance with the regulations and policies of his administrative superior, and with the regulations and laws of the city and state; that the responsibility, risk, and time of personnel required for the production of biologicals and pharmaceuticals, be ended and the products be procured from commercial sources, releasing space, equipment and personnel for strictly public health laboratory procedures; that actual clinical activities be removed from the operation and supervision of the laboratory.

It is recommended that the laboratory be so equipped and conducted as to offer a continued demonstration of public health procedure to the entire citizenry which is executed amidst attractive, cleanly surroundings in an orderly fashion with scientific precision and without fear or favor. Pending the provision of a laboratory building or space suitable for the purposes of the department, which is desirable, it is recommended that the present quarters be renovated, rearranged, furnished the needed equipment as herein indicated, and that labor-saving devices be provided which will make for an economy of personnel and smoothness of operation. In such a rearrangement, a reduction and reassignment of the space devoted to the chemistry division might well be contemplated. A very definite simplification of the methods of making and filing records and reports and the relief of technicians from this duty seems urgently needed. A simple standard for the interpretation of reports should be determined by cooperation between the chief of the clinic and of the Division of Communicable Diseases and the director, in accordance with modern practices and be set forth on each form. For purposes of control, check and comparisons of the technique in use, it is desirable that the standardized methods which have been developed by outstanding leading scientists be practiced in detail, and results checked at regular periods with the laboratory of the State Department of Public Health. The manufacture of biologicals entails procedures whose execution requires such specialized experience and safety devices that it is only with full recog-

dition of the potential dangers involved that they could be undertaken. Though the director has been successful, the process claims his attention which should be free for general supervision and direction. The immediate cash saving effected by the manufacture may be quickly dissipated by one error or mishap.

In considering the budget of the laboratory, it is suggested that provision be made for the employment of high-grade technicians whose salaries are comparable to those paid by the state in amount and stipulated increases; that the present salaries be adjusted in proportion to the qualifications and experience, state certification of proficiency, responsibility and efficiency of each respective employee; that provision of salaries include a director, three technicians of senior grade (bacteriology, serology, biochemistry, parasitology), six technicians of junior grade (bacteriology, serology, milk, water), four general laboratory assistants (one of whom has experience in the detection of plague in rodents), one chemist, one assistant chemist, one chemist's assistant, five general laboratory attendants (including janitors, messengers, night man, washroom man), three clerks, and that \$4,000 be allocated for renovation, rearrangement and equipment, including work benches, refrigerators, incubators, etc.

MILK SANITATION

By M. M. MILLER, Associate Milk Specialist, U. S. Public Health Service

The primary objectives of the survey of milk sanitation included in the general survey conducted by the U. S. Public Health Service in the city of Los Angeles from May to August, 1939, were to determine the quantity and quality of the work being performed by, and the efficiency of, the milk sanitation service of the city health department, considering the needs of the city as a whole. The character of the survey was analytical, rather than inquisitional, from the administrative and functional points of view. The milk sanitation survey was conducted as prescribed in Reprint No. 1970 of the U. S. Public Health Reports, and covered all areas of the milk shed, including such distant outlying areas as the San Joaquin Valley which supplies much of the cream, and reviewed the handling of milk and dairy products from the producing farms, through city processing plants, to the consumer's doorstep.

In general the milk supply of the city of Los Angeles is derived from the same sources as that of the metropolitan area which includes some 44 incorporated cities and towns in addition to the city of Los Angeles. The population of the city of Los Angeles constitutes about 60 per cent of the total population of the entire metropolitan area. The total population which is supplied with milk from common sources represents more than that of the city and county and numbers some 2,500,000 people. The metropolitan area has experienced unusually rapid growth of population due largely to an influx of persons from various sections of the country. Besides the resident population, there is a large floating population made up of people seeking opportunity, health and happiness. The population of the city of Los Angeles has about doubled in every decennial census since 1850 as can be seen in the following table:

Year	Population	Year	Population
1890	50,395	1933	1,299,550
1900	102,479	1934	1,351,140
1910	319,198	1935	1,394,491
1920	576,673	1936	1,437,823
1930	1,238,048	1937	1,433,207
1931	1,271,660	1938	1,489,238
1932	1,291,510		

The rapid increase in population, the growth of industry, and the intricate boundary lines of the several municipalities all contribute to the magnitude and complication of the public health problems of the metropolitan area. The enormous task of supplying such an area and concentrated population with a satisfactory milk supply becomes increasingly difficult, both as to volume and as to administrative problems involved. Some of the area is mountainous, varying from sea level

to 7,500 feet but the climate is mild and even. In 1938, the average number of clear days was 179, partly cloudy 130, and cloudy 56. There were only 14 days having a maximum temperature of 90° F. or above and only one day less than 32° F. The average warmest month is August with an average daily mean temperature of 71.4; the coldest is January with an average of 55.2; the average annual mean temperature is 62.9; the annual rainfall is about 15 inches. In a climate as mild as this optimum conditions prevail for milk deliveries and dairying.

Laws and Ordinances

For the past several years, much of the city's milk ordinance has been in litigation and the city, for the most part, has been without a milk ordinance, having to rely upon the limited State Agricultural Code for authority and requirements. It is most unfortunate that this test case of the city milk ordinance should be allowed to be continued indefinitely; immediate and aggressive efforts should be made to get this ordinance out of the courts or failing in this, a new one should be written which will be sustained in the courts. Most of the milk and ice cream laws under which the health department operates are contained in ordinances as follows: No. 68,910, Section 152-61, 1931; No. 69,223, 1931, Section 162-183; No. 77,000, 1936 (Nov. 12) Section 35.76-35.87. Ordinance No. 74,185, dated September 26, 1934, created a "Milk Inspection Fund, Outside Districts—A Trust Fund" and represents a scheme to provide for assessing against producers the cost of milk inspection service for that portion of the Los Angeles milk shed more than about 90 miles in distance from Los Angeles and so beyond the permit system operating in the city.

Ordinance No. 74,185 is undesirable enough but the "contract" is even more so. The city health department is not and should not be in a position to dicker with private industry in this manner wherein the health of the community may be involved. The "contracts" or "agreements" entered into with various members of the industry are regarded as especially bad practice. The ordinance provides that producing contractors "will be entitled to receive milk inspection service * * *" whereas most laws require them to accept inspection or discontinue supplying supervised markets. The city health department is in a very dangerous position when it limits the character and amount of its inspection by private written agreement. The health department must be free to supply whatever amount and kind of inspection it deems necessary to assure that any milk supply complies with the sanitation requirements.

The basis of arriving at the cost of this inspection is not good. While the advisability of requiring the industry to carry all the load of the cost of inspection is open to serious question, if this is done the inspection and permit fee should be based on a definite amount of milk and be specific in its details such as so many cents per hundred weight. This fee should be reasonable and equitable and should apply all over the milk shed, in the Los Angeles as well as in the outside areas. The health department should use this money in any way it sees fit without interference or supervision from commercial agencies.

The following table summarizes the budgeted expenditures and derived income of the milk inspection division for several recent years:

Revenues and Budget Expenditures of the Milk Inspection Division in Recent Years

Fiscal Year	In Los Angeles Area		In Outside Areas*	
	Income	Costs	Income	Costs
1930-31 -----	\$15,832.16	\$49,713.08		
1931-32 -----	13,916.75	48,426.35		
1932-33 -----	9,039.47	41,024.35		
1933-34 -----	14,180.74	41,096.37		
1934-35 -----	22,766.25	30,914.52		
1935-36 -----	19,969.26	32,119.78	\$17,288*	\$17,288
1936-37 -----	19,280.00	32,373.87	18,251*	18,251
1937-38 -----	17,685.00	32,017.27	18,900*	18,900
Average -----	\$16,583.70	\$38,460.70	\$18,146	\$18,146

* This service is paid for by the industry on a cost basis—City Ordinance 74,185.

The milk division in the city health department is handicapped in trying to do milk sanitation work under the State Agricultural Code pending disposition in the courts of the test case involving the city milk ordinance in that this law is not modern and many of the essentials thereof are not made mandatory. In this law the old score card system in which credit is awarded for partial compliance is still recommended; the score card on the pasteurization plants is especially inadequate; it is difficult to establish definitely which items of sanitation are mandatory. The time and temperature factor of control specified are not effective; the pasteurization temperature of 140° F. is too near the thermal death point of some of the pathogens. It is not equal in its requirements; while various grades of raw milk must be produced on farms scoring not less than 90, 80 and 70 respectively (depending on whether or not the milk is guaranteed, Grade A raw, or intended for pasteurization), this milk can be taken to a pasteurization plant on which there are no score requirements of any kind. It seems that all of the emphasis has been placed on the sanitation of producing farm dairies, and there is abundant evidence to justify this conclusion. The score card system of inspection, while it served a great need at the time, today has largely served its period of usefulness and should be abandoned in this area. This state law is further handicapped in not being administered by agencies primarily interested in public health. It is generally recognized and accepted that supervision of the sanitation of milk production is a function of the health department and such interests can be best served by the agency officially responsible for the public health.

The State Agricultural Code provides for grades of milk such as "certified," "guaranteed raw" and "guaranteed pasteurized," "Grade A raw" and "Grade A pasteurized" and "manufacture" with enforcement provisions accomplished largely through a permit revocation process. The certified milk is controlled by the medical milk commission. The score of the dairy farm producing guaranteed raw milk must be at least 90 and the total bacterial count of the milk not more than 10,000 when sold raw; the total bacterial count of "guaranteed pasteurized" is restricted to not more than 3,000 after

pasteurization. Grade A raw milk if sold at retail must come from farms scoring at least 80 and must have a total bacterial count less than 15,000. "Grade A pasteurized" must come from dairy farms scoring at least 70 and have a bacterial count of less than 75,000 before pasteurization, and not exceeding 15,000 after pasteurization.

The "certified" and "guaranteed raw" and "guaranteed pasteurized" milk is double capped and bears the date of production or pasteurization, as the case may be. Except for the double and dated cap, there is little difference between "guaranteed raw" and "Grade A raw" milk. Serious consideration should be given to the discontinuance of the grade "Guaranteed milk"; the name is a misnomer and leads to false conclusions. Further details of these grades can be found in the following table:

Grades of Milk According to the State Agricultural Code

DAIRY MILK	UNGRADED 3.3% BUTTER FAT BY STATE INSPC.	RAW—SAMPLES	T. B. TESTED COWS	
		50,000 BACTERIA COUNT	50,000 BACTERIA COUNT	
		TWICE YEARLY	NO. SCORE REQUIREMENTS (INSPC. TWICE YEARLY)	
MARKET MILK	GRADED 3.3% BUTTER FAT BY APPROVED INSPC. DEPT.	PASTEURIZED	T. B. TESTED COWS (REQUIRED EFFECTIVE SEPTEMBER, 1939)	
			BACTERIA COUNT	250,000 BEFORE 25,000 AFTER
			DAIRY SCORE NOT REQUIRED	
MANUFACTURE MILK	MFG. 3% BUTTER FAT: 1ST, 2D, 3D CLASS	CERTIFIED	T. B. BANG TESTED COWS	
			10,000 BACTERIA COUNT	
			NO SCORE REQUIREMENTS	
			SEMI-ANNUAL HEALTH EXAMINATION EMPLOYEES	
DAIRY MILK	UNFIT FOR HUMAN CONSUMPTION	GUARANTEED 3.5% FAT HEALTH CERTIFICATES SEMI-ANNUALLY: RAW POURING LIP PROTECTED AND CAP DATED (PRODUCTION OR PASTEURIZATION DATE)	T. B. TESTED COWS	
			10,000 BACTERIA COUNT	
			90 SCORE ON DAIRY	
			BOTTLED ON PREMISES	
DAIRY MILK	MFG. 3% BUTTER FAT: 1ST, 2D, 3D CLASS	PASTEURIZED	T. B. TESTED COWS	
			3,000 BACTERIA COUNT	
			90 SCORE ON DAIRY	
DAIRY MILK	MFG. 3% BUTTER FAT: 1ST, 2D, 3D CLASS	GRADE A	T. B. TESTED COWS	
			15,000 BACTERIA COUNT	
			80 SCORE ON DAIRY	
DAIRY MILK	MFG. 3% BUTTER FAT: 1ST, 2D, 3D CLASS	PASTEURIZED	T. B. TEST (REQUIRED AFTER SEPTEMBER, 1939)	
			BACTERIA COUNT	75,000 BEFORE 15,000 AFTER
			70 SCORE ON DAIRY	

Serious consideration should be given to the adoption of the milk ordinance recommended by the U. S. Public Health Service* as approved by the United States Department of Agriculture and the Conference of State and Territorial Health Officers. This would be far-reaching in its effect and would do much to standardize all the milk inspection services maintained by various local health departments in this producing area and would give them common ground on which to meet and act. Good roads and modern automobiles together with rapidly growing demand from a fast growing population in the Los Angeles area have expanded the economic limits of milk sheds and has greatly emphasized the need for uniform sanitary milk standards for Grade A pasteurized milk. The best rule and guide for accomplishing this is the Milk Code of the U. S. Public Health Service. This code is modern, adequate and complete and presents much information for guidance not conveniently obtainable elsewhere in print. In populous areas like Los Angeles County with its 44 cities, federal standards such as these are firm ground on which to build local ordinances. Such a program could do as much for local milk control as federal certification has done for water supplies and the federal stamp has done for meat inspection.

Administration and Personnel

The milk sanitation activities of the Los Angeles City Health Department are conducted by the milk inspection division which is under the immediate charge of its director and under the general supervision of the lay executive assistant to the city health officer. The work is conducted from a central office in the city health department serving the Los Angeles area and four producing district offices at Santa Maria, Fresno-Hanford, Tulare and Bakersfield. In the central office serving the Los Angeles area there are the director, two full-time processing plant inspectors and eight field inspectors, one of whom is a veterinarian. The clerical work of the division is done by two stenographers and one male clerk, who also do the clerical work of the meat inspection division and the fruit and vegetable inspection division of the city health department. The public health laboratory of the city health department maintains one laboratory assistant and a full-time helper and part-time services of a chemist for milk control work. In the outside producing areas, there is one inspector at Santa Maria, one at Bakersfield, one at Fresno-Hanford and two at Tulare. In addition to these, there is one supervisor at Tulare together with three laboratory assistants. Laboratories are maintained at Santa Maria and Tulare. The following table summarized the personnel set-up of the milk inspection division of the city health department.

* See Public Health Bulletin No. 245, U. S. Public Health Service, December, 1938.

Personnel of the Milk Inspection Division

Position	Number employees	Service	Annual salary	Status	Years of service	Location
Director (chief inspector)	1	Full-time	\$2,340	Civil service	20	Central office, Los Angeles
Inspector (veterinarian)	1	Full-time	2,220	Civil service	18	Central office, Los Angeles
Inspectors	9	Full-time	2,040	Civil service	16	Central office, Los Angeles
					(average)	
Inspector-technician	1	Full-time	2,400	Civil service	10	Santa Maria District
Inspector	1	Full-time	2,040	Civil service	2	Fresno-Hanford District
Supervising technician	1	Full-time	2,400	Civil service	13	Tulare District
Inspector	1	Full-time	2,040	Civil service	-----	Tulare District
Technician	2	Full-time	1,620	Civil service	-----	Tulare District
Technician assistant	1	Full-time	1,280	Civil service	-----	Tulare District
Inspector	1	Full-time	2,040	Civil service	-----	Bakersfield District
Chemist	1	Part-service	2,040	Civil service	-----	P. H. Laboratory, Los Angeles
Laboratory assistant	1	Full-time	1,620	Civil service	20	P. H. Laboratory, Los Angeles
Laboratory assistant helper	1	Full-time	1,500	Civil service	17	P. H. Laboratory, Los Angeles
Clerk	1	Part-service	2,040	Civil service	10	Central office, Los Angeles
Secretary	1	Part-service	1,320	Civil service	11	Central office, Los Angeles
Stenographer	1	Part-service	1,680	Civil service	5	Central office, Los Angeles
Totals	23	Full-time (equivalent)	\$44,660			

It can be seen from the above table that the wage scale is entirely too low and all out of proportion to the responsibility connected with this type of work. Of the eleven men in the central office in Los Angeles, only two have the education, experience and background to justify the expectation of adequate control of milk sanitation. In the whole staff of twenty-five, only four have college degrees whereas the technical nature of the work calls for scientific training in practically every position. The average age of the eleven men in the Los Angeles area is 48 years and the average number of years in the service is 16 years. In the outside producing areas the six men had an average age of 42 years and an average length of service of 7 years.

The training of the men assigned to the problem of milk sanitation should be of the highest type; they must know milk which in itself involves complex problems in chemistry and bacteriology. They must have some comprehension of epidemiology and the serious implications of contamination. They must have some knowledge of veterinary medicine to assist in the control of bovine diseases such as tuberculosis and Bang's disease; they should have some knowledge of feeds and feeding to avoid flavors in the milk derived from feed and a working knowledge of farm building layout and construction and its relation to the sanitary production of clean milk. In the city milk plants, the processing and distribution involves problems of administration and engineering of intricate character; the inspector must be a tireless worker having much patience, tact and courage and he must be highly trained in his technical field.

The basis on which milk inspectors are selected is badly in need of revision. Holding a state laboratory technician's license should not be made a prerequisite to taking the examination as this is not a sanitation requirement but is intended to qualify workers in private laboratories maintained by the industry. In one instance, the education and training was that of a rancher who had had the benefit of very little formal

schooling, still the applicant was given a civil service rating of 84.9. In another instance, the inspector possessed a college degree with a major in problems germane to milk control work and came to the city health department with a wide range of experience gained largely through service on state departmental staff, yet he attained a civil service rating of only 85. Here is an actual recorded difference of only 0.1, but there is no comparison between the two men in terms of education, training, background, experience and results obtained in the field. On the other hand, one case was found where the employee had been employed for more than ten years before a civil service rating was established. The milk division is loaded with exranchers, grocery clerks, service station attendants and the like; while this is true, these employees now have civil service status and it is not practicable to, nor is it recommended that any of these men be replaced at this time. What many of them originally lacked in technical education has been partially compensated for through long years of practical experience on the staff (the average is 16 years in the Los Angeles office). But as these men reach retirement age, they should be replaced with qualified men having had training in technical schools of higher learning; none should be considered for examination who has not actually graduated and holds an appropriate technical degree. More care should be exercised that such men attain civil service ratings representative of their technical qualifications.

This question of qualifications for milk inspectors may be partially solved in the future through a recent (1939) act of the California Legislature designed to establish higher standards to be administered by the State Department of Agriculture. The law is regarded to be weak in some sections, however, in that it permits the alternate employment of persons having "some other equivalent combination of education and similar dairy industry experience in lieu of college training." All candidates for these positions should be college graduates with at least bachelor degrees in science with a major in some technical aspect of this work; furthermore, it is not regarded as good public health practice to vest in the State Department of Agriculture the power of determining the qualifications of such local health department personnel. This should be a function of the State Department of Public Health.

Besides the one chief inspector (director) and ten inspectors maintained by the city health department in the Los Angeles area, the county health department has ten milk and dairy inspectors, and the cities of Pasadena and Long Beach each have one. In addition to these, some of the counties in which the milk is produced also maintain sanitarians who exercise some control over the sanitation of milk production. The medical milk commission maintains a veterinary sanitary officer to supervise the production of certified milk. For the most part the spirit of cooperation between these various groups is wholesome but there is a lack of uniformity in the laws and various local ordinances and inequality in their interpretation and enforcement. Many instances were found where dairies were operating locally as approved Grade A establishments but which had to make major changes and improvements before they could obtain permits to sell on other markets.

There are eight inspectors of the city health department in the Los Angeles area assigned to the inspection of 742 wholesale "can" dairies which ship their milk in cans into the city for pasteurization, which averages 93 dairies per man. Besides 742 can dairies, these eight inspectors supervise 133 raw milk dairies, 36 of which pasteurize a portion of their milk production. This gives each inspector an average of 17 additional dairies, or a total of 110. There are over 50 city pasteurization plants (operated or controlled for the most part by two men), and 46 dairy product depots, 150 ice cream plants, 37 cottage cheese and buttermilk plants, 23 butter plants, 22 flavored milk plants and 91 retail distributors.

In all, there is a total of about 2,000 premises under milk or milk product permit which must be inspected by 15 field inspectors, or 133 per inspector. The character and volume of this work can be seen in the following table:

Number of Establishments Holding City Health Department Milk Permits

Type	Number
Wholesale dairies (can to pasteurizing plant) -----	1,370
Bottling dairies -----	142
Pasteurizing dairies -----	35
Dairy product processing plants -----	50
Dairy product depots -----	46
Ice cream plants -----	150
Cottage cheese and buttermilk plants -----	37
Butter plants -----	23
Flavored milk plants -----	22
Retail distributors -----	91
Total -----	1,966

The following table summarizes the number of retail raw and wholesale can dairies and number of pasteurization plants and the number of inspections made of each by inspectors of the milk inspection division according to annual reports of the city health department:

Year	Inspections Made		Bottle Dairies (Raw) *	Can Dairies (Pasteurized)
	Dairies	Plants		
1935 -----	18,531**	-----	147	1607
1936 -----	16,582	4,004	138	1441
1937 -----	15,714	4,569	138	1418
1938 -----	15,537	3,756	145	1481
1939 -----	17,569	5,319	142	1370

* Does not include 4 goat milk dairies.

** Also includes plants—not segregated for this year.

Milk Supply

The farm dairy business in the Los Angeles area is a highly concentrated industry maintained on an artificial or "hot house" basis, when compared with most other milk producing regions of the United States. Practically no young stock is raised, the dairymen depending on replacements of "milked out" cows by importing dairy cattle in lactation from other states and from other counties in California. The greater number of these cattle do not endure for very long periods

of time. Many of them have only one lactation period, and very few attain more than four or five lactation periods.

During the year ended June 30, 1938, importations amounted to 18,886 dairy cattle from a total of 18 other states and 29 other California counties, as shown in the following tables. Such an arrangement as this makes control of disease in dairy cattle difficult and necessitates the greatest degree of vigilance on the part of those charged with this important responsibility.

**Interstate Shipments of Dairy Cattle Received in Los Angeles County
During Year 1937-1938***

State	Number	State	Number
1. Idaho -----	5,937	10. Minnesota -----	303
2. Utah -----	4,093	11. Oregon -----	240
3. Colorado -----	2,756	12. Nevada -----	200
4. Arizona -----	1,616	13. New Mexico -----	113
5. Oklahoma -----	961	14. Kansas -----	91
6. Texas -----	941	15. Wisconsin -----	32
7. Montana -----	640	16. Massachusetts -----	27
8. Washington -----	492	17. Rhode Island -----	6
9. Missouri -----	435	18. Pennsylvania -----	3
Total -----		18,886	

* From the 14th Annual Report, Los Angeles County Livestock Department, 1937-1938.

**Intrastate Shipments of Dairy Cattle Received in Los Angeles County
During 1937-1938****

County	Number	County	Number
1. King -----	1,732*	16. Stanislaus -----	36*
2. Imperial -----	1,381	17. Yuba -----	28
3. Fresno -----	850*	18. Del Norte -----	27
4. Orange -----	626	19. Monterey -----	25*
5. San Bernardino -----	478	20. San Joaquin -----	24
6. Tulare -----	429*	21. San Mateo -----	23
7. Riverside -----	354	22. Napa -----	22
8. Ventura -----	190	23. Sutter -----	19
9. Humboldt -----	148	24. Butte -----	17
10. San Luis Obispo -----	145	25. Glenn -----	13
11. Santa Barbara -----	112	26. Madera -----	7
12. Kern -----	104	27. Siskiyou -----	4
13. Sacramento -----	102	28. Placer -----	1
14. San Diego -----	88	29. Solano -----	1
15. Modoc -----	46		
Total -----		7,032	

* Not all tested and negative for tuberculosis.

** From the 14th Annual Report, Los Angeles County Livestock Department, 1937-1938.

As shown in the following tables, the six counties in the Los Angeles area of the milk shed contain 759 dairies with 59,350 cows producing an average of 227,778 gallons of milk a day for pasteurization and there are eleven counties in the outside areas of the milk shed which contain 611 contributing farm dairies with 36,666 cows and ship an average of 106,967 gallons of milk a day to the pasteurization plants in the city of Los Angeles, most of which is used in supplying sweet cream for table purposes.

Dairies in Area Around Los Angeles Producing Milk for Pasteurization by Counties*

Counties	Number Dairies	Number Cows	Gallons Daily	Average Score
Los Angeles -----	566	43,052	176,454	79.76
Orange -----	56	5,155	16,620	80.
Riverside -----	24	2,290	7,160	79.
San Bernardino -----	86	5,606	18,760	79.2
Ventura -----	10	2,365	6,755	81.5
Kern -----	17	882	2,029	82.
Totals -----	759	59,350	227,778	80.24

* From the Annual Report of the City Health Department.

Counties in Outside Areas Producing Milk for Cream*

Counties	Number Dairies	Number Cows	Gallons Milk	Gallons Cream	Mfg. Cream	Average Score
Tulare -----	277	13,550	45,046	2,957	658	77.3
Fresno -----	53	3,133	7,786	476	0	81.
Merced -----	45	2,863	7,011	188	150	80.
Kings -----	50	2,832	7,820	485	2	80.6
Madera -----	30	1,766	4,265	204	0	79.
San Joaquin -----	11	1,350	3,192	55	100	77.25
Kern -----	57	4,369	14,162	847	0	80.
Stanislaus -----	9	881	1,665	35	50	78.5
Imperial -----	20	953	2,520	55	0	73.
Santa Barbara -----	47	3,728	10,550	870	0	72.75
San Luis Obispo -----	12	1,241	2,950	270	0	71.
Totals -----	611	36,666	106,967	6,442	960	77.31

* From the Annual Report of the City Health Department.

Where such an enormous "turn-over" in dairy cattle takes place as it does in the Los Angeles area, it is difficult to understand how such high production can be maintained. The following tables show that the yearly average production of Los Angeles County dairy cattle is 4.0 gallons per cow per day. The average in the six of the counties in the outside milk shed area is 3.2 gallons. These figures are quite significant when it is considered that the yearly average daily production per cow in the State of California is only 2.0 gallons and the yearly average for the nation is only 1.4 gallons. Note from the tables, too, that the average size of the dairy in Los Angeles County is 76 cows per dairy producing 311 gallons a day, and the average size dairy for the six of the outside counties in the Los Angeles milk shed area is 102 cows producing 319 gallons per day. The average sized dairy in the entire eleven counties making up the outside milk shed area comprises 73 cows which produce an average of 189 gallons of milk per day, or 2.6 gallons per cow.

Average Number of Cows per Dairy and the Average Production per Cow in the Los Angeles Area

County	Average No. of Cows per Dairy	Average Daily Production per Cow in Gallons	Number of Dairies**	Average No. of Gallons per Dairy*
1. Los Angeles -----	76	4.0	566	311
2. Orange -----	92	3.2	56	295
3. Riverside -----	95	3.1	24	298
4. San Bernardino -----	65	3.3	86	218
5. Ventura -----	236	2.8	10	675
6. Kern -----	51	2.3	17	119
Average -----	102	3.2	---	319

* Milk production intended for pasteurization.

** From the Annual Report of the City Health Department.

**Average Number of Cows per Dairy and the Average Production per Cow
in Milk Shed Counties Outside of the Los Angeles Area**

County	Average No. of Cows per Dairy	Average Daily Production per Cow in Gallons	Number of Dairies**	Average No. of Gallons per Dairy*
1. Tulare -----	48	3.3	277	162
2. Fresno -----	59	2.48	53	147
3. Merced -----	63	2.4	45	156
4. King -----	56	2.76	50	156
5. Madera -----	55	2.4	30	142
6. San Joaquin -----	122	2.36	11	290
7. Kern -----	76	3.2	57	248
8. Stanislaus -----	97	1.89	9	185
9. Imperial -----	47	2.6	20	126
10. Santa Barbara -----	79	2.8	47	224
11. San Luis Obispo -----	103	2.36	12	246
Average -----	73	2.6	---	189

* Milk production intended for pasteurization.

** From the Annual Report of the City Health Department.

Contrast these production figures with those in the United States where the yearly average daily milk production per dairy intended for pasteurization is 12.3 gallons, whereas in the Los Angeles area it is 319 gallons. In other large cities of the United States (over one-half million) there are 7.5 farm dairies producing milk intended for pasteurization per 1,000 population while on the Los Angeles milk shed there is only one. Contrast these figures also with the retail raw milk dairies in Los Angeles with a yearly average daily production of 2.5 gallons per cow.

How long this pace can be maintained is difficult to say. As the area around Los Angeles becomes more densely populated the milk dealers of the metropolitan area of Los Angeles will have to look more and more to distant regions like the San Joaquin and Imperial Valleys for additional sources of their supply, and the former is already in the natural milk shed of the metropolitan area surrounding San Francisco Bay.

Tuberculosis Testing of Cattle

During the past years, rapid and gratifying results have been made in the eradication of bovine tuberculosis throughout the United States. Not only is this project of enormous economic importance but the danger of bovine tuberculosis to public health is recognized and established. All of the states in the union have now been designated as accredited, except one, which is California. Of the more than 3,000 counties in the United States, all are modified accredited except nine, representing about one-third of one per cent, all of which are in California. These nine include the counties of Alameda, Santa Cruz, Calaveras, Stanislaus, Merced, Fresno, Monterey, Kings and Tulare, and all of these are now under test and may be expected to be cleared in due course of time. Los Angeles County was declared a modified accredited area by the Federal Bureau of Animal Industry on June 1, 1938, in accord with results shown in the following tables and the accompanying graph:

Results of Tuberculin Testing in Los Angeles Area by State and Federal Authorities *

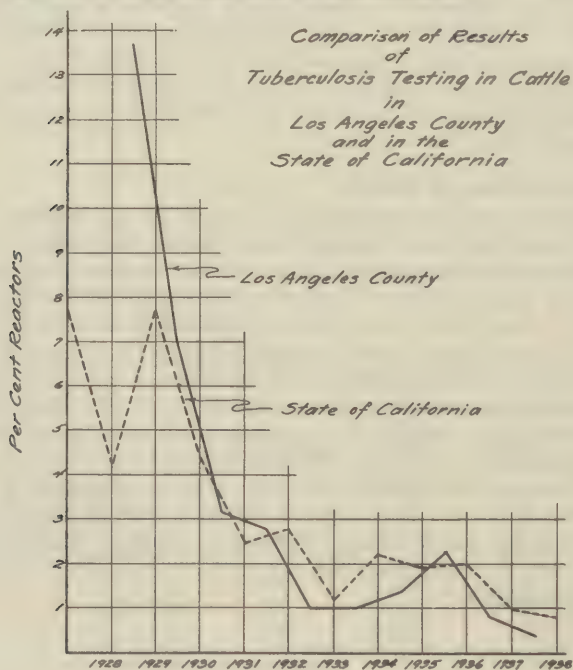
Year	No. Cattle Tested	No. Reactors	Per Cent Reactors
1925	21,628	1,844	8.5
1927	30,594	2,193	7.16
1928	33,689	1,411	4.18
1929	63,884	4,572	7.15
1930	71,168	3,103	4.36
1931	65,718	1,636	2.48
1932	110,326	3,126	2.8
1933	86,641	1,063	1.2
1934	102,787	2,316	2.2
1935	124,300	2,378	1.9
1936	120,235	2,408	2.0
1937	121,879	1,195	0.98
1938	128,972	925	0.71

* From reports of State Department of Agriculture.

Results of Tuberculin Testing in Los Angeles County by the Los Angeles County Livestock Department*

Year	No. Cattle Tested	No. Reactors	Per Cent Reactors
1928-29	81,859	11,285	13.7
1929-30	79,611	4,041	5.0
1930-31	75,132	2,410	3.2
1931-32	71,187	2,050	2.8
1932-33	67,109	692	1.0
1933-34	65,963	691	1.0
1934-35	67,658	988	1.4
1935-36	88,877	2,102	2.3
1936-37	96,566	795	0.823
1937-38	96,861	381	0.39

* From records of the Los Angeles County Livestock Department.



Some tuberculin testing has been going on in the state since 1917 when the State Pure Milk Law was passed. In 1931 the state went on an area control basis and tuberculosis free areas began to appear. The Los Angeles County Livestock Department has been active for the past twenty-five years but the ordinance (Ordinance No. 1802) requiring all cows to be tuberculin tested was not passed until 1930, and in 1939 this was made statewide by an Act of the Legislature effective September 19, 1939. Most of the opposition to the test is being found in the area of Merced, Fresno, Kings and Stanislaus counties. In some sections, this project is in the courts but in 1939 the State Legislature enacted a law effective September 19, 1939, requiring the tuberculin test for all cattle. Before this the State Agricultural Code did not require the tuberculin test for cows producing milk intended for pasteurization or manufacture. All of the tuberculin testing in the Los Angeles milk shed area, which includes eleven counties, is under the supervision of the State and Federal Departments of Agriculture. The work is done by 16 veterinarians working out of the Los Angeles office of the State Department of Agriculture.

In addition to the state and federal staff, the Los Angeles County Livestock Department maintains an office to police all of the stock of Los Angeles County. The work of this division is all important in view of the artificial arrangement in this area for the maintenance of dairy herds by importations from other counties and states. The personnel of the county office comprises 20 persons, 12 of whom are veterinarians. Every effort should be made to maintain this staff at full working strength because of the significant position they fill in regards to animal disease control and its direct relation to milk sanitation and the preservation of public health.

While the area around Los Angeles is accredited, it will be a difficult task to maintain this status in view of the fact that practically all importations are open to question and some come from areas in California known to be infected with bovine tuberculosis. In the fiscal year ended June 30, 1938, Kings County shipped 1,732 dairy cattle into Los Angeles County, and Fresno County shipped 850. All shipments of dairy cattle from areas that are not at least "modified accredited" should be definitely discontinued and prohibited, and the Los Angeles County Livestock Department should have sufficient men to maintain an impenetrable road patrol over all avenues of importation. This would probably necessitate increasing the present staff by as much as ten men, notwithstanding that the present service is of a very high type.

The dairy farmers in this area do not raise young stock for replacements but buy lactating milk cows all over the United States. In 1938 there were 18,886 dairy cattle shipped in from other states and 7,032 from other counties in California. The task of keeping this area free of disease under such unnatural conditions assumes enormous proportions and illustrates vividly the very great need for universal pasteurization of milk. Although all of the 24,607 cattle had health certificates upon arrival, when they were retested 0.67% were found to react to the tuberculin test. The widespread presence of bovine tuberculosis in the state is further evidenced by the fact that 1,602,654 pounds of meat, representing 3,874 carcasses, were condemned for

human consumption by official meat inspectors in the state because of tuberculosis alone—equaling the total quantity condemned for all of the other diseases put together.

Brucellosis

Infections with the melitensis variety of organism which causes undulant fever is widely distributed in the United States, especially in the southwestern area, and is giving the health departments much anxiety and concern. The infection of dairy cattle with the melitensis variety is a matter of importance not only because of man's greater susceptibility, but also on account of the greater severity of the human disease caused by this variety which results in a true septicemia. The disease occurs in endemic and epidemic form and is on the increase. In light of the fact that melitensis infection is widely distributed through sources in bovine, porcine, caprine and even equine and ovine species, the need for extended pasteurization becomes increasingly apparent since raw milk can be and probably is one of the chief sources of the disease in humans.

Of the large cities of the United States, about 88% require Bang tested dairy herds for the production of raw milk. Portland, Oregon, has had this requirement for ten years. In the city of Los Angeles, no systematic effort has been made to control this disease, except in the certified herds and this represents only one per cent of the raw milk supply. The procedure of placing Bang reactor animals in other raw milk herds is especially bad practice and should be immediately discontinued and prohibited.

The Los Angeles County Health Department says, "The undulant fever problem is not growing less, and is still very largely a matter of raw milk." Fifty-one cases were reported to the county health department in 1937 and 45 of these were definitely traced to raw milk while it was suspected that the other six came from the same source. In view of modern knowledge on this subject, the fact that it should be regarded so lightly in the city of Los Angeles is surprising; immediate steps should be taken to pasteurize 100 per cent of the milk supply.

Dairy Beautification—Award—Dairy of Merit

One of the unique and praiseworthy projects encountered during this survey was the dairy beautification program of the field quality group of the California Dairy Industry Association, which consists in the granting of attractive plaques as awards to dairies of merit who successfully complete a listed set of requirements to the extent of 90 per cent or better. It has long been known in many phases of human endeavor that if the environmental surroundings are conducive to improved practices, then the maximum degree of efficiency is most apt to be attained. With this view in mind, a score card was formulated which listed 15 items germane to the general physical appearance of a dairy and its surroundings such as unnecessary, broken or poorly constructed fences, old buildings, rubbish, old machinery, junk, rusty tin milk cans, weeds, bad odors, loose animals other than dairy cattle (pigs, fowl, et cetera) on the one hand, and desirable conditions such as clean corrals, painted buildings and landscaping on the other hand. Fourteen of these items count six points each, while landscaping counts

sixteen points making a total of 100 points for a perfect score. The score card items are as follows:

Item	Perfect Score
1. Unnecessary fences	6
2. Broken or poorly constructed fences.....	6
3. Unsightly buildings	6
4. Piles of rubbish (all kinds).....	6
5. Old machinery or machinery out of place.....	6
6. Rusty milk cans.....	6
7. Weeds	6
8. Dirty corrals	6
9. Manure piles	6
10. Water holes	6
11. Bad odors	6
12. Fertilizer plants in front.....	6
13. Pigs, chickens, goats or other animals other than dairy stock.....	6
14. Whitewashed, painted or stained corral fences.....	6
15. Landscaping	16
Total	100

When this project was first started in 1935, only 17 dairies were awarded plaques; later that year 21 more were added to the list making a total of 38. In 1939, 286 dairies, 88 of which were new additions to the list, were recognized as a "Dairy of Merit" by making a score of more than 90 and the success of this project is very evident. This program is worthy of commendation and should be widely emulated, not only throughout California, but in all the states in the union.

Milk Control

There is a total of 1,370 milk plant dairies which ship their milk to the city of Los Angeles in cans for pasteurization and 133 retail raw milk (bottled) dealers and 87 pasteurization plants. During the survey 52 of these retail raw milk dealers and 92 of the dairies which ship their milk in cans to the pasteurizing plants were inspected. A total of 59 of the 87 pasteurization plants were inspected; of these 87 plants, 37 are raw milk dealers which pasteurize a portion of their supply in the country.

Number of Dairies and Milk Plants and Number of Each Inspected in This Survey

Type	No. in Supply	No. Inspected
Retail raw milk dairies (bottled).....	133	52
Wholesale milk dairies (cans for pasteurization).....	1,370	92
Pasteurization plants (in city, 50; outside 37).....	87	59

Dairy Farm Inspection

On the 129 farm dairies (four goat dairies not included) selling retail raw milk, there are 14,396 cows producing 35,811 gallons of milk, of which 18,871 gallons are sold daily as retail raw milk. These represent an average of 111 cows per dairy and an average production per cow per day of 2.5 gallons; the average daily production per dairy is

277 gallons, 146 gallons of which are sold raw. Contrast the figure of 146 retail raw gallons per dairy with the average of other large cities in the United States of 30 gallons and a weighted mean average for the nation of 28.9 gallons.

The dairy farm inspections were made in accordance with U. S. Public Health Service dairy farm inspection form No. 8976-A, 1936 (summarized below).

List of Item Numbers and Subjects Contained in U. S. Public Health Service Milk Code "Dairy Farm Inspection Form—8976A," 1936

Cows		Water Supply	
1.	Testing for tuberculosis, Bang's, etc.	11.	Sanitary quality, accessibility
Dairy Barn		Utensils	
2.	Lighting (milking building)	12.	Type and materials
3.	Air space, ventilation	13.	Cleansing—(facilities, practice)
4a.	Floor construction (milking building)	14.	Bactericidal treatment (equipment, use)
4b.	Floor cleanliness (milking building)	15.	Storage
5.	Walls and ceilings (construction, painting)	16.	Human handling prior to next usage
6a.	Cow yard—(grading, draining)	Milking	
6b.	Cow yard—cleanliness	17.	Udders and teats—(cleansing, diseased excluded)
7.	Manure disposal	18.	Flanks (brushing, cleansing)
Milk House		19.	Milkers' hands (cleansing)
8a.	Floor (construction)	20.	Milkers' clothing (clean outer garments)
8b.	Walls, ceiling (construction, painting)	21.	Stools—type and storage
8c.	Lighting, ventilation	22.	Removal of milk (immediate, no handling)
8d.	Screening	23.	Cooling (during holding and transit)
8e.	Miscellaneous (use, orientation, waste disposal, hot water, chlorination, etc.)	Bottling and Capping	
9.	Cleanliness and fly control in milk house	24.	Mechanical—(clean, use)
Toilets and waste disposal		Employees	
10.	Location, construction, maintenance, cleanliness	25.	Health examination, tests, etc.
		Miscellaneous	
		26.	Vehicles—type, cleanliness, storage

Most of these farms were found to be in very good condition and showed that they were under constant supervision. The retail raw dairies are inspected by the milk inspection division at least twice each month. However, there are a few items of sanitation which could receive more adequate attention and if this was done, the supply would undoubtedly be improved.

On the retail raw dairies (bottled milk) as shown in the following table, 25 per cent were found to violate the following items of sanitation:

Sanitation Requirements for Retail Raw Milk Dairies in the U. S. Public Health Service Milk Ordinance Found Most Frequently Violated

Sanitation Item* No.	Over 25 % of the Dairies	Violated by Over 50 % of the Dairies	Over 75 % of the Dairies
5	X	-	-
8d	X	-	-
9	X	-	-
10	X	-	-
12	X	-	-
19	X	-	-
21	X	-	-
26	X	X	X

* Item numbers correspond to numbers of items of specification for production of Grade A Raw Milk on the U. S. Public Health Service Dairy Farm Inspection Form No. 8976-A, 1936.

In the case of wholesale milk being shipped to the milk plants in cans and intended for pasteurization, more than 25 per cent of the dairies were found to be violating sanitary items Nos. 5, 6b, 7, 8d, 9, 10, 15, 19, 21 and 26. Fifty per cent of the dairies were found to be violating items 6b, 9, 10 and 15, and of the latter item more than 75 per cent were in violation as shown in the following table:

Sanitation Requirements for Production of "Grade A Milk Intended for Pasteurization" in the U. S. Public Health Service Milk Ordinance Found Most Frequently Violated

Sanitation Item* No.	Over 25 % of the Dairies	Violated by Over 50 % of the Dairies	Over 75 % of the Dairies
5	X	-	-
6b	X	X	-
7	X	-	-
8d	X	-	-
9	X	X	-
10	X	X	-
15	X	X	X
19	X	-	-
21	X	-	-
26	X	-	-

* Item numbers correspond to numbers of items of specification for the production of "Grade A Milk Intended for Pasteurization" on the Public Health Service Dairy Farm Inspection Form No. 8976-A, 1936.

This had to do especially with the storage of equipment, especially milk cans returned from the creameries. In most instances, these cans are brought to the milk house and stored on the floor with the lids in place. More adequate facilities should be provided for storing these cans after washing on metal racks in the milk house at an angle of 45 degrees. The entire type of construction for dairy barns and milk houses is very good. The milk house in every instance has two rooms and in most instances, facilities are provided for cooling the milk through mechanical refrigeration. One of the few weaknesses observed in dairy barn construction is the method of emptying the milk pails after they have been brought to the strain room. In many instances, this dump tank is located in the barn itself without so much as a

protecting wall between the cows and the dump tank. The dump tank, when exposed, should be protected by an overhead fan. Many instances were found where these strain rooms were not adequately protected against the entrance of flies. This is regarded as a violation of Regulation X, paragraph III, page 50 of the State Agricultural Code and is definitely a violation of Item 22 on the Public Health Service Dairy Farm Form. Better facilities are provided for in this regard in the newer construction going up in the valley than in the region around Los Angeles. The newer type barns in the "valley" are more acceptable in that the protecting wall is definitely maintained between the milking herd and the pouring room from the floor to the ceiling. These barns are also neater in that the cows face toward the outside walls instead of facing in toward the center.

Mandatory Pasteurization

It is not necessary nor practical within the confines of this survey report to embark upon a thesis on the merits of proper pasteurization as a means of protecting the milk supply and public health. The authorities agree and the literature upon this subject is conclusive. The people in the Los Angeles area, and in California, too, should review again the article in the State Health Department Weekly Bulletin of December 22, 1934. When one considers the large number of people who come to this area for their health, the large number of replacement cattle imported each year, and the large amount of meat condemned because of tuberculosis, it is surprising that the cities in this area have so long delayed this necessary, appropriate and expedient legislation. In this regard, Los Angeles has lagged far behind some of her sister cities in the state.

Of the more than 135 cities in the United States in which 100 per cent of the milk (except certified milk) is pasteurized, 65 have made it a legal requirement. San Francisco requires the pasteurization of 100 per cent of its entire milk supply including certified milk, which is ideal. In the United States, 97.5 per cent of the milk supply of cities is pasteurized, against 84 per cent in the city of Los Angeles and only 65 per cent in the county. This is not regarded as a wholesome condition and not in accord with better public health practices. The increased prevalence of undulant fever in the area and the distribution of retail raw milk from known reactors to the Bang's test makes pasteurization imperative.

Pasteurization Plant Inspection

The inspection of pasteurization plants was performed as prescribed on U. S. Public Health Service Pasteurization Plant Inspection Form No. 8978-C, 1936 (summarized below). While there are some plants which meet most of the requirements, many were found to be in a poor state of repair and most of them were in need of new equipment. Some of the buildings have been in use for decades. As stated elsewhere in this report, the city should immediately adopt a modern milk ordinance modeled after the milk control code of the U. S. Public Health Service and then all of the pasteurization plants should be brought into compliance with such a new ordinance.

**List of Item Numbers and Subjects Contained in U. S. Public Health Service
Milk Code "Pasteurization Plant Inspection Form No. 8978-C"**

- | | |
|--|--|
| 1. Floors—construction, use, cleanliness | 14. Handling of containers—avoidance of human handling |
| 2. Wall and ceilings—construction, cleanliness | 15. Storage of caps—package covers unbroken, dry place |
| 3. Doors and windows—fly-screened, self-closing doors | 16a. Indicating and recording thermometers—number, location, periodic checking |
| 4a. Lighting—adequate, natural and artificial | 16b. Pasteurization time and temperature—standards |
| 4b. Ventilation—avoid condensation and odors | 16c. Inlet and outlet valves—type, leak-proofing |
| 5. General protection from contamination—practice | 16d. Foam heating—temperature air above milk level |
| 6. Toilet facilities—type, condition, location | 16e. Covers—design, type, use |
| 7. Water supply—accessibility, sanitary quality | 16f. Preheating holding vats—prior to use |
| 8. Hand washing facilities—convenient, soap, hot water, towels | 17. Cooling—before and after pasteurization, type and design of equipment |
| 9. Milk piping—type, condition | 18. Bottling—mechanical, design |
| 10. Construction of containers and equipment—smooth surface, self-draining | 19. Overflow milk—discarded |
| 11. Waste disposal—liquids sewerred, solids in covered cans | 20. Capping—mechanical integral with bottler |
| 12a. Cleaning operations—after each use | 21. Personnel—health examinations, tests |
| 12b. Bactericidal treatment—steam, hot water, chlorine | 22. Personal cleanliness—clean outer clothing, hand washing |
| 13. Storage of containers—inverted free from flies, dust | 23. Vehicles—covered, clean, clean protected storage |

On this inspection form, more than 25 per cent were found to be violating sanitation items Nos. 1, 2, 3, 5, 6, 8, 10, 11, 13, 15, 16a, 16b, 16c, 16d, 16e, 17, 18 and 23. More than 50 per cent were found to be violating items 1, 2, 3, 5, 6, 8, 16a, 16b, 16d, 17, 18 and 23. More than 75 per cent were found to be violating items 5, 8, 16a, 16b, 16d and 23, as can be seen in the following table. The item 16d was found to be violated to the extent of 100 per cent.

**Sanitation Requirements in Milk Plants for Grade A Pasteurized Milk in
the U. S. Public Health Service Milk Ordinance Most Frequently Violated**

Required Items No. *	Sanitation Requirement	Violated by		
		Over 25 % of Plants	Over 50 % of Plants	Over 75 % of Plants
1	Floors.....	×	×	—
2	Walls and ceiling.....	×	×	—
3	Doors and windows.....	×	×	—
5	Miscellaneous.....	×	×	×
6	Toilet.....	×	×	—
8	Hand-washing.....	×	×	×
10	Construction and repair equipment.....	×	—	—
11	Waste disposal.....	×	—	—
13	Storage.....	×	—	—
15	Capacity storage.....	×	—	—
16a	Indicating and recording therm.....	×	×	×
16b	Time and temperature control.....	×	×	×
16c	Valves.....	×	—	—
16d	Foam heating.....	×	×	×
16e	Vat covers.....	×	—	—
17	Cooling.....	×	×	—
18	Bottling.....	×	×	—
23	Delivery vehicles.....	×	×	×

* Item numbers correspond to Requirements for Grade A Pasteurized Milk on the U. S. Public Health Service Pasteurization Plant Inspection Form No. 8978-C, 1936.

The method of receiving the milk on a platform that opens to the street and hence is available to dust and flies and contamination of various sorts is regarded as especially bad practice. The receiving room should be regarded as a separate part of the general plant and should be housed with four walls, properly lighted and ventilated with adequate facilities provided for the exclusion of flies and other possible sources of contamination. Wherever possible, the can washer should not be placed in the same room where the milk is received and dumped. After the milk is picked up from the receiving room with a pump, if filtering is done any place in the plant the filter should be placed in the line between the receiving room and the vats that receive the milk from this pump. In no case should filtration or clarification take place after pasteurization.

Many of the pasteurization vats were found to be improperly equipped in not having leak-protector inlet valves. If the inlet lines into the vats were installed in such a manner as to reach to the bottom of the vat much foam formation could be avoided. Where such construction is arranged, however, care should be taken to see that the inlet pipe is equipped with a small hole just above the milk line to permit the milk in the line to seek the level of the milk in the vat.

The time and temperature factor of control was found to be especially inadequate; specifications for thermometer and time and temperature control equipment are set forth in the Milk Control Code of the U. S. Public Health Service. Very few of the vats were equipped with modern one-degree 12-hour recording thermometers and, where indicating thermometers were present at all, one had to suffice for a number of vats, sometimes as many as six or eight. Where the vat system of pasteurization is used each vat should be equipped with an accurate recording thermometer and each vat should be equipped with a modern indicating thermometer with a scale range at pasteurization

temperature of one degree, accurate to within one-half of a degree. In addition to this, each vat should be equipped with a heater to heat the space between the cover and the surface of the milk and this temperature should be maintained 5 degrees above the temperature of the milk and should be also controlled by an indicating thermometer, the bulb of which extends through the lid with the bottom of the bulb chamber not less than 2 inches and not more than $3\frac{1}{2}$ inches below the underside of the cover. More care should be given to the recording thermometer charts as to date, location, temperature check against indicating thermometer and they should have the signature or initials of the plant operator.

In lieu of the necessity of installing a lot of much needed equipment such as thermometers, foam heaters, leak protector inlet valves, coolers and cooler-covers and the elimination of the many old holders which are now unfit for use, serious consideration should be given by most of the major milk plants to the installation of short-time, high-pressure pasteurization facilities.

Vats should be equipped with leak protector flush type outlet valves and from here the milk should be pumped to coolers which, if of the surface type, should be equipped with tight-fitting covers. All bottling machines should be equipped with covers so designed as to prevent the entrance of water of condensation from the cooler trough or pipe lines. This can best be done by installing a small diverting apron on the pipe line above the bottling machine. Where "soaker type" bottle washers are used, they should be excluded from the bottling and pasteurization room by tight partitions and the bottles should be brought to the bottling machine on an automatic conveyor having a fixed overhead shield to prevent the possibility of contaminating clean bottles before filling. More adequate hand washing facilities should be provided. It is not regarded as sufficient to have lavatories only in remote locations such as the basement rooms, and nowhere else. Convenient hand washing facilities, including sanitary towels, soap and a plentiful supply of hot and cold water should be maintained in all rooms in the plant, including the receiving, pasteurization and bottling rooms. In the outside areas, and elsewhere too, those plants handling more than one grade of milk should equip themselves in such manner as to be able to handle satisfactorily more than one grade. Cases were found where vats were placed side by side, one ostensibly for Grade A, the other for manufacture but the two vats were connected with sanitary piping in such a way that a simple twist of the wrist would throw both supplies into one pipe line. It would be advisable, at least for the immediate future pending the provision of completely adequate facilities, to designate the better of these pasteurizing plants for the handling of Grade A milk and to restrict the less desirable plants to the handling of "manufacture" milk. Some of the present plants are unfit to handle Grade A milk.

The type of delivery vehicle used by most of the plants was found to be inadequate and in most instances undesirable. Some of these vehicles were open bodied in every respect and afforded no protection whatsoever to the milk. What little covering was provided, in most instances was made up of sacks of various types, the sanitation of which in some cases at least was open to serious question. Immediate

provisions should be made for improving the type of vehicle authorized to be used to haul milk, both the bottled milk which is being delivered to the consumer and that in cans which is being delivered to the plant for pasteurization. The fact that some of the plants already have this type of delivery vehicle is proof that this method is feasible and practicable. Some of the trucks hauling the milk to the plants afforded so little protection to the milk that the benefits of artificial refrigeration used on the farm were largely lost.

Several instances were found where this milk had raised in temperature as much as 10 degrees en route. When samples were tested on the street on one day for temperature, 97 per cent of those samples tested were found to exceed the temperature limitations and on another day 76 per cent were found to be too high. This is apparently due for the most part to the type of delivery vehicle which is in general use and an insufficient amount of cooling media such as ice; these conditions result from the fact that the city health department has been negligent in their testing of milk temperatures at the point of delivery to the consumer. The practice in the past has been to collect the samples from the milk plant ice box and even here, little attention has been given to temperature of the milk.

Some of the milk hauling contractor establishments in the Los Angeles area are unique to the city of Los Angeles; one organization which started in 1926 with two trucks and two drivers, now hauls most of the city's milk supply to the pasteurization plants and at the present time it is using 81 trucks and has 100 employees. This organization handles nothing but milk, all of which is intended for pasteurization. They gather the milk from 480 producers and haul it to 24 plants and handle over 10,000 cans or 100,000 gallons a day, and the unit of exchange is a 10-gallon can. All of the milk in the Los Angeles area is delivered twice a day and some of it actually reaches the consuming public in as short a time as 12 hours—some of it even less. The surveying officer accompanied one of these trucks on its regular morning pick-up of dairy farm milk and a summary of this trip is shown in the following table. This trip covered about 18 miles and took 1 hour and 17 minutes to complete; in this time 910 gallons of milk were collected from eight farms.

Time Required to Pick Up 910 Gallons of Farm Milk from Eight Dairies
in the Los Angeles Area

Dairy	Time of Pick-Up A. M.	Number of Cans Received	Number of Gallons	Mileage
Leave plant-----	5:35	--	--	--
1 -----	5:50	16	160	--
2 -----	6:00	9	90	--
3 -----	6:05	16	160	--
4 -----	6:14	6	60	--
5 -----	6:19	9	90	--
6 -----	6:23	13	130	--
7 -----	6:26	14	140	--
8 -----	6:35	8	80	--
Return to plant-----	6:52	91	910	18

The following table represents data from the annual reports of the city health department for the last five years and it summarizes

the amounts and general sources of the city's milk supply and the annual average sanitation score thereof.

Year	Number of Dairies		Average Number Cows		Gallons Produced—Daily Average		Average Score	
	Outside Area	In L. A. Area	Outside Area	In L. A. Area	Outside Area	In L. A. Area	Outside Area	In L. A. Area
1935---	797	810	37,342	48,263	77,606	151,981	78.33	73.53
1936---	609	832	33,929	54,237	75,347	180,670	76.49	75.82
1937---	548	870	35,218	65,003	92,723	204,598	77.23	74.24
1938---	501	790	27,160	59,590	83,352	207,966	76.55	79.50
1939---	611	759	36,666	59,350	106,967	227,778	77.31	80.24

The following table shows the various grades and the amount of each, comprising the average daily milk supply of the city of Los Angeles, classified according to the State Agricultural Code.

	Grade of Milk	Number of Dairies	In L. A.	Gallons Sold Daily Outside
Raw—				
Certified	-----	3	2,161	846
Guaranteed	-----	10	606	616
Grade A	-----	116	16,104	15,480
Goat	-----	4	49	25
Total	-----	133	18,920	16,967
Pasteurized—				
Guaranteed	-----	3	287	1,033
Grade A	-----	82	98,291	102,447
Goat	-----	2	91	8
Total*	-----	87	98,669	103,488

* Includes milk from intermittent or occasional supply derived from a total of 3,511 "family" cows on the entire milk shed.

It is of interest to note that for the fiscal year ended June 30, 1938, the total daily average of milk production was 291,318 gallons. This total includes milk from casual intermittent sources of supply derived from a total of 3,511 "family" cows on the entire milk shed area, the surplus production of which more or less finds its way to collection for the market; the average daily volume of such surplus milk in the Los Angeles supply is estimated at some 7,000 gallons. The average total number of gallons of retail raw milk sold daily in the city of Los Angeles is 18,920 and the average total number of gallons of pasteurized milk sold daily is 98,669, making an average daily total of 117,589 gallons, 84 per cent of which is pasteurized; this is equivalent to a per capita milk consumption of 0.67 pints in the city of Los Angeles. The difference between the total daily average supply of 291,318 gallons and the total retail milk sale of 117,589, amounting to 73,729, apparently enters into manufacture.

The following table summarizes the results and ratings of the milk supply of the city of Los Angeles:

Total gallons of raw and pasteurized milk sold daily-----	117,589
Percentage of milk, et cetera, pasteurized-----	84
Daily consumption of market milk, et cetera, in pints per capita--	0.67
U. S. Public Health Service rating of the retail raw milk (bottle)	94.0
U. S. Public Health Service rating of raw milk sold to plants (cans)	85.8
U. S. Public Health Service rating of pasteurization plants-----	72.1
U. S. Public Health Service rating of pasteurized milk-----	79.0

The U. S. Public Health Service sanitation rating on the retail raw milk was 94 per cent; the rating on the raw milk sold to the plants, 85.8 per cent; the rating on the pasteurization plants, 72 per cent; the rating on the pasteurized milk, 79 per cent. Milk to be of a satisfactory quality when measured by these sanitary standards, should have a rating of at least 90 per cent. These figures do not take into consideration intermittent and occasional milk supply derived from the more than 3,500 "family cows" in the milk shed area which represents at least 7,000 gallons of milk and the rating of which would undoubtedly reduce the 94 per cent rating considerably. The figure showing that only 84 per cent of the milk supply is pasteurized does not compare favorably with the other large cities in the United States which average 97.5 per cent pasteurized. The area of Los Angeles County outside of the city is in a still less favorable position with only 65 per cent of the supply pasteurized.

Ice Cream Plant Inspection

There are 150 ice cream plants producing 7,117 gallons of ice cream a year, 4,319 gallons of which is sold in the city of Los Angeles and 2,798 gallons is sold outside of the city. There is only one plant producing more than 3,000 gallons; only three producing more than 1,000 gallons; only eight producing more than 500 gallons. In addition there are enormous numbers of "counter" freezers; there should be closer cooperation between the milk inspection division and the housing and sanitation divisions as some of these counter freezers start operating without the knowledge of the milk inspection division and when they are found by the inspectors of the housing or sanitation division, they should be reported to the milk inspection division for check-up.

What has already been recorded elsewhere in this report regarding pasteurization plants applies even more to ice cream plants in the city of Los Angeles. There were very few instances where the construction, sanitation and practices of these plants were found to be satisfactory; many of them were so dilapidated as to be actually unfit for use. Many of the pasteurizing vats had "dead end" outlet valves and no attempt was made to keep surface coolers covered. The city health department is much in need of more adequate laws and more adequate inspection service to properly safeguard the ice cream supply; this inspection service needs to be increased both as to quality of work done and to quantity. One inspector of the milk inspection division should be specifically assigned to full-time supervision of ice cream plants and he should be specially trained and qualified to supervise ice cream plant layout, operation and sanitation and should know the ingredients of an ice cream mix, the chemistry and bacteriology involved in, and the public health significance of, their deterioration; this man should have a college degree in appropriate technical education and should have had adequate experience. An adequately trained man would command a salary of \$3,600 per year.

The U. S. Public Health Service developed a frozen desserts plant inspection form to be used in checking compliance with the sanitation provisions recommended and prescribed in U. S. Public Health Service Frozen Desserts Code issued in March, 1938. This form was used in

this survey of the ice cream plants in the city of Los Angeles and its itemized requirements are summarized in the following presentation:

List of Item Numbers and Subjects Contained in the U. S. Public Health Service Frozen Desserts Code "Inspection Form" (1938)

Ingredients Purchased	Products and Purchasers
Mix—sources and amounts.....Name.....	Ice cream—gals.....
Milk and cream—sources and amounts.....Location.....	Mix desserts—gals.....
Other supplies—sources and amounts.....Date of inspection.....	Othergals.....
<ol style="list-style-type: none"> 1. Floors—impervious construction, drainage, condition. 2. Walls and ceilings—smooth, washable, light colored, condition. 3. Doors and windows—screening, self-closing doors or fans and flaps. 4a. Lighting — adequate, artificial (where required). 4b. Ventilation—adequate, no odors or excess condensation. 5. Protection—from contamination; adequate space, partitions, process separation, type of equipment and usage, practice, location of space, etc. 6. Toilets—number, location, indirect access, ventilation, screening, plumbing, self-closing doors, lavatory. 7. Water—adequate hot and cold supply, safe source, convenient distribution. 8. Lavatories — number, location, plumbing, soap, towels, use. 9. Piping—sizes, lengths, cleaning ports, smooth surfaces, sanitary fittings, accessibility. 10. Equipment — smooth surfaces, noncorrodible materials, no open seams, drainage, accessibility, condition. 11. Wastes—disposal of liquids and solids, covered garbage and trash cans. 12a. Cleaning — containers following each use; equipment at close of each day. 12b. Disinfection — containers after each cleaning, equipment once daily prior to use, (live steam, hot water, or chlorine solution). 13. Storage—containers above floor level, inverted, protected space. 14. Handling—avoid human contact with interior or other surfaces in contact with product. 	<ol style="list-style-type: none"> 15. Caps—non-reuse containers, etc., paper products in dry storage, original cartons intact. 16a. Thermometers, indicating and recording: number, location, use, periodic check. 16b. Pasteurization—time and temperature requirements and records, all ingredients (except fruits), no raw by-pass, agitation during pasteurization of mix, daily charts. 16c. Valves—inlet and outlet, number, type, location, connections, leak protection, air release. 16d. Airspace—above mix in vats: temperature, thermometers, recording. 16e. Vat covers — drainage, ports closed. 16f. Preheating—required for holders prior to use. 17a. Cooling—type of equipment, use, location, construction. 17b. Freezing—time limit after pasteurization, transportation of mix. 18. Packaging—manual, avoid contamination and handling contact surfaces, or approved type of automatic. 19. Overflow—of mix and products discarded. 20. Returns of mix or products prohibited. 21. Personnel — health examination certificates required. 22. Personal cleanliness — washable outer work garment for inside employees. 23. Vehicles—clean, covered, identity, restricted use, storage. 24. Ingredients—clean, sound, wholesome flavor and odor, safe sources, pasteurized (fruits, etc., processed).

More than 25 per cent of the plants were found to be violating Items Nos. 1, 5, 8, 12a, 13, 16a, 16b, 16c, 16d and 17 on the 1938 ice cream plant inspection form of the U. S. Public Health Service. More

than 50 per cent were found to be violating items 5, 8, 16a, 16d, 17a. More than 75 per cent were found to be violating items 16a, 16d, and 17a as can be seen in the following table:

Items of Sanitation Requirements Found Most Frequently Violated by the Ice Cream Plants

Sanitation Item * No.	Sanitation Requirement	Over 25 % of Plants	Violated by Over 50 % of Plants	Over 75 % of Plants
1	Floors -----	X	-	-
5	Miscellaneous -----	X	X	-
8	Hands—clean -----	X	X	-
12a	Cleaning -----	X	-	-
13	Storage -----	X	-	-
16a	Indicating and recording thermometers	X	X	X
16b	Time and temperature -----	X	-	-
16c	Valves -----	X	-	-
16d	Air heating -----	X	X	X
17a	Coolers -----	X	X	X

* The numbers correspond to items of sanitation on the U. S. Public Health Service Frozen Desserts Plant Inspection Form (1938).

Sampling and Testing

Most of the bacteriological milk work is done in the public health laboratory of the city health department by a full-time female laboratory assistant, with a laboratory helper. The butter fat and specific gravity tests are made by a chemist who devotes about half of his time to milk work. The annual report for the fiscal year ended June 30, 1938, shows a total of 58,670 samples tested. The laboratory work is seriously handicapped through lack of personnel, proper quarters and sufficient equipment—both as to quality and quantity. Some of this equipment is in such a bad state of repair that it is tied together with wire and rubber bands. Certain items of equipment are so scarce as to necessitate interrupting the work while all hands “fall to” and clean up used equipment so as to have enough to finish the work in hand. Other of the equipment in use is antiquated and outmoded and later equipment for procedures necessary to modern milk control activities are almost entirely lacking.

Besides the chemical and bacteriological work done for the milk inspection division in the central public health laboratory of the Los Angeles City Health Department, bacterial plate counts are done by the inspector-technicians at Santa Maria and Tulare milk district offices; at the latter 25,000 to 30,000 plate counts are done per year.

It is felt that too much time is utilized in the laboratory with plate counts. In the laboratory in Los Angeles 50 per cent of this work could be dispensed with and more time devoted to other laboratory procedures of value but now being neglected. The emphasis being placed on the plate count is not in proportion to its importance or advantage in good modern public health administration. In the outlying areas like Tulare, fully 75 per cent of the district office laboratory work should be discontinued. This would release the inspectors for more work of greater value. Most of their time is taken up now with the collecting of samples too frequently; furthermore, these samples are taken with such regularity that the dairymen know about when to expect it, hence the small value they have is materially minimized.

The conditions found on field inspection were not consistent with the great number of very low bacterial counts found in the records.

The following table summarizes data contained in the annual reports of the city health department for the last five years and shows the total number of inspections made by the milk inspection division and the total number of samples of milk and ice cream collected and tested.

Year	Laboratory Samples Tested	Ice Cream Samples Collected	Number of Inspections
1934-35-----	36,479	3,137	18,531
1936-----	51,651	4,181	20,586
1937-----	62,031	4,065	20,283
1938-----	73,539*	-----	19,293
1939-----	66,818	4,165	22,888

* Apparently includes ice cream samples.

In the city of Los Angeles the inspectors go directly to the plants and dairies to collect laboratory samples. The proper way to do this is to collect most of these samples from the delivery vehicles as is common practice in most sections of the country. When the sample is collected at the plant, it does not represent a consumer sample and the city health department should be interested primarily in the product as it eventually reaches the general public.

When the surveying officer took samples directly from the milk wagons on one day, 19 per cent of those samples tested were too high in bacterial count and on another day, 25 per cent were above the allowable limit. These counts are not sufficiently higher than the city counts to cause alarm but do justify the need for collecting samples from delivery wagons. The temperature showed much greater variation than did the plate counts. On one day, 97 per cent of the samples taken directly from delivery wagons tested too high in temperature and on another day, 76 per cent of the samples tested for temperature were too high. These temperatures are further evidence of the great need for closed delivery vehicles to protect the milk from the sun and dust and adequate cooling to maintain satisfactory temperatures. The checking of milk temperatures on the delivery wagons by the inspectors is greatly neglected. The milk inspection division should maintain two men who would devote their entire time to checking retail delivery trucks and temperatures and collecting dairy samples in the Los Angeles area for laboratory test. The temperatures should be taken at frequent and irregular intervals and be suitably recorded in the files of the city health department.

Records

The system of keeping the records in the Los Angeles office of the milk inspection division is good and is well maintained. However, the record cards do not have a temperature column; temperature columns should be placed on these cards and be filled in, together with the other data for each dairy entered. The keeping of records would be facilitated and guidance could be obtained by adopting and using forms like the ledger record forms, No. 8976-B and 8976-C of the U. S. Public Health Service. Similarly more adequate inspection forms like U. S.

Public Health Service forms No. 8976-A and 8978-C, should be used in the field on both the dairy farms and the pasteurization plants. These grading forms should be made out in duplicate and the copy left with the dairymen, preferably tacked on the wall and the original first entered in the milk inspection division ledger and then filed under the dairyman's name in the records of the milk inspection division. In addition to these inspection reports, the file for each dairy should contain the originals or copies of the tuberculosis and Bang test certificates of its cattle and the health certificates of its employees.

In the district offices for the outside producing areas, the system of record keeping is not equal to that of the central office in that one finds it necessary to review enormous numbers of various sheets and reports to find all of the data regarding any one dairy upon different examinations. Each dairy farm and milk plant should have a single sheet showing a number and date of successive inspections and laboratory tests. There is such a system available in the central office but not in use, which could probably be installed advantageously in Tulare. These records should show the temperature of the milk on arrival at the plants. Very little time is spent on this phase of the work now and little, if any, of it is recorded in the office files.

At the present time the inspectors are required to keep detailed records, in some instances of questionable value; one of these is the recording of the speedometer reading at every dairy visited of the car they use for transportation. If the speedometer reading was recorded at the beginning and at the end of the day, or trip out of the office, and was filed with carbon copies of inspection reports, this should suffice. These details in records take time that could be more profitably spent at details of actual inspection; the public health benefits to be derived from such record details are not commensurate with the time involved.

In the last two years ending in January, 1939, the milk inspection division of the city health department reports the following improvements:

New milk houses.....	270
Milk houses remodeled.....	119
New dairy barns.....	253
Dairy barns remodeled.....	377
Total improvements.....	1,019

In addition to the foregoing milk control activities of the Los Angeles City Health Department, local health departments of other cities in the county, such as Pasadena and Long Beach, also maintain their own milk inspection and laboratory facilities and the Los Angeles County Health Department maintains milk laboratory control facilities in the metropolitan area at each of its ten health district offices at Alhambra, Compton, East Los Angeles, Glendale, Monrovia, Pomona, San Antonio, San Fernando, Santa Monica, Torrance; and the central laboratory of the county health department makes a total of eleven in which laboratory work which has a direct bearing on the milk supply of both the county and the city is performed. Further supervision of the sanitation of the milk supply is accomplished to a varying extent by the various county health authorities in several of the ten other counties in the outlying milk shed.

Summary

The milk supply of the city of Los Angeles is produced by 1,370 farm dairies supplying an annual average of 272,447 gallons of milk daily, and 129 retail raw milk dairies supplying 18,871 gallons, making a total of 291,318 gallons per day. The city retails 117,589 gallons per day, 84 per cent of which is pasteurized. When measured by U. S. Public Health Service standards (and based on a perfect rating of 100) the retail raw milk had a rating of 94, the milk intended for pasteurization 85.8, the pasteurization plants 72, and the pasteurized milk 79 per cent. The 94 per cent rating on the retail raw milk does not include about 7,000 gallons of raw milk derived casually from more than 3,500 "family" cows on the milk shed of the metropolitan area. The city milk supply reaches a metropolitan population of nearly 3,000,000 people including the inhabitants of some 44 cities in addition to the city of Los Angeles.

The dairy business in this area is peculiarly artificial and carried on a highly concentrated basis. The dairymen do not raise young stock for replacements in their herds but buy lactating cows on the open market from importations from other counties and states, averaging about 25,000 head per year.

The tuberculin testing of cattle is conducted by state and federal authorities and a good quarantine control service is maintained by the county to police disease and safeguard importations; all cattle detained are retested before release. Some of the importations and some of the milk is from areas that are not yet tuberculosis free. Except for certified milk, very little effort is being made to free the raw milk herds of Bang's disease—in fact, known reactors are allowed to be removed from one herd and are found in other retail raw milk herds.

All of the farm dairies display evidence of supervision, some of them being quite attractive, especially the "Merit Plaque" dairies. The pasteurization plants are in need of more intensive supervision and most of them are in need of modernization through improved quarters and more modern equipment. The time and temperature factor of control is especially inadequate, both in the state law and in operation. Many of the receiving rooms and platforms are practically "out on the street" and so exposed as to furnish very little protection. In some of the plants sanitation is maintained at a high standard while in others less desirable conditions exist. The conditions in the ice cream plants were the least desirable in this regard, and showed a lesser amount of inspection.

More attention needs to be given to manure disposal both around the dairies in the Los Angeles area and in the outlying producing areas. In many instances, fly-breeding was found and this made the control of fly exposure very difficult. The inspectors should teach the dairymen the need of keeping the dairies scrupulously clean at all times, especially during the fly-breeding season.

Increased attention needs to be given to the dairy farm water supplies. Many instances were found where the water was pumped into tower tanks and these tanks, while tight when first constructed, were made of wood and provided with wooden covers; the heat and weather had pulled them apart until now they are open to all kinds of contamination. Reference in these matters to Bulletin No. 220 of the U. S. Public Health Service and to Supplement No. 124 of the

U. S. Public Health Reports entitled "Ground Water Supplies" is advised. When the water is pumped to tower tanks, these should be made either of all metal, in which case the covers can be flat, or if made of wood the covers should be pitched steep and strongly constructed to retain shape and should be dust-tight; some instances were found where the cover had sagged in the center and acted more as a funnel than as a roof to protect the water supply.

In this survey many dairies and plants were inspected in the outside producing areas that had never been visited by the representatives of the milk inspection division. This is not so much a reflection upon the activities of the present limited personnel of the milk inspection division as it is upon a lack of adequate personnel and, more important, the failure on the part of the city health department to refer all milk control problems to its milk inspection division, and to permit this division to function normally and effectively. While the milk inspection division is officially charged with all functions relating to the sanitation of dairies, plants, milk and milk products, much of this work is assigned to and attempted by persons in the city health department other than inspectors of the milk inspection division. Instances were found where such arrangements had been made with sections of the industry without the concurrence or even the knowledge of the milk inspection division, and there are other instances in which applications for permits had been referred to the industry for approval before they were acted upon by the city health department. Such irregularities in control can only lead to confusion and can not possibly work to the best interests of all concerned; control activities are apt to lack technical direction and official coordination and, in most instances, total positive accomplishments are not commensurate with expenditures made for the work. All milk control personnel should be an integral or coordinated part of one division serving under one responsible directing head and the milk control function exercised solely by or through that division.

In this connection, it was observed that the inspection areas outside the immediate environs of Los Angeles, while technically under the supervision of the chief inspector who is director of the milk division, actually are so loosely organized as to make effective control impossible. The district offices from which milk inspection is done in the outlying producing districts should be more closely coordinated with, and directed by, the central office. At the present time they could be regarded more as units of the industry than of the milk inspection division of the city health department. The industry pays for them, practically tells them what and how much to do, and the personnel employed and assigned to do the work must be acceptable to the industry. The city health department even opens its books to representatives of the industry to check on the expenditure of these funds. Instances were found where expense accounts of field inspectors were reduced without explanation, because the examiner for the industry felt they were excessive. Such procedure compromises the position of the city health department; it ruins effective milk inspection service and undermines the morale of the milk inspectors. In one area two inspectors have been removed at the insistence of the dairymen from the territory without demonstrated cause, and the present condition of this milk shed is mute evidence of the failure of the city health

department to sustain its inspectors. In the outside producing areas the city health department should maintain its own offices and personnel independently so as to be free to function normally and effectively. One instance was found where the milk district office is maintained in a building belonging to the industry, where all acts and telephone calls of the milk inspectors were subject to review by the industry, if and when so desired. This is not good practice and is embarrassing not only to this concern but to the milk inspectors and other dairymen as well.

The assigned territories of field milk inspectors should be changed regularly every year or two throughout the milk shed. Consideration should be given to requiring milk inspectors to wear white washable uniforms while on duty.

Very much time is devoted in the laboratory to total bacterial plate counts. In the laboratory of the city health department all retail milk is tested twice each month and the pre-pasteurized milk once each month; the samples are collected at the plants and dairies, and none are taken from the delivery vehicles on the street.

Most of the deliveries are made in open trucks both in the city and from the country. They are so constructed as to furnish insufficient protection to the milk supply. Much of the milk in transport was found to be too high in temperature due to open type delivery vehicles and insufficient provision for maintaining properly low temperatures.

Most of the current city milk ordinances are tied up in the courts, and have been for the past several years, and the milk inspection division, for the most part, is operating under the Milk Code of the State Department of Agriculture, which is not regarded as the best in modern milk control provisions.

The milk inspection division, in common with all the other divisions of the city health department, is so cramped for space as to be unable to function effectively. The milk inspection division alone should have all of the space now occupied by the milk inspection division, the meat inspection division and the fruit and vegetable inspection division.

There are fifteen inspectors working in the milk division, eleven of whom are in the central office at Los Angeles and four working in the outlying producing districts, the largest of which is at Tulare where a staff of six people is maintained, including three laboratory workers. Two of the outside producing district inspectors are paid \$200 each per month but the chief inspector (and director) of the milk inspection division only receives \$195 and the top salary for all other inspectors is \$170 per month. Insufficient attention is given to educational qualifications and in several instances laymen are maintained in professional positions requiring technical training. The inspectors are occasionally without adequate administrative support of the department and are not granted sufficient freedom of action to permit them to perform their duties effectively. Too many functions of the milk inspection division are performed or directed by persons outside of the milk inspection division. The male clerk in this division should be assigned duties of greater responsibility more commensurate with his executive ability. At the present time too much of his time is consumed in answering the telephone. His salary should be at least \$2,400 and he should be pro-

vided with a clerk to assist him so as to permit him to give most of his attention to the maintenance of adequate statistical records, files and reports.

The milk division should be fortified with a new, modern, effective milk ordinance similar to the milk code ordinance of the U. S. Public Health Service. The division should be built up in personnel to provide a director at a salary of \$4,000 per year; one supervisor in charge of pasteurization at a salary of \$3,600 per year; one supervisor in charge of dairy farm and field activities at a salary of \$3,600 per year; one supervisor to be in charge of ice cream plants at a salary of \$3,600 per year. All of these men should be highly trained specialists in their respective fields. The counsel and part-time services of one veterinarian should be also included in, or available to, the milk inspection division. Two field inspectors should be assigned to truck inspection and sample collecting from delivery wagons on the streets. One additional field inspector and two full-time additional clerks should be made available in the office of the milk inspection division. The director or one of his supervisor assistants should be in the office at all times to receive office calls and give out technical information and should dictate all letters emanating from this division. At the present time the office is without attendance about half of the time. In the San Joaquin Valley district office at Fresno, two more field inspectors and one clerk-stenographer should be added to the staff. At present too much of the time of high priced personnel is utilized in office routine on work that could be done better by a \$100-a-month clerk.

As seen in a foregoing table showing the costs of the milk inspection division, the city health department has spent only about \$32,000 in the fiscal year ended June 30, 1938, on milk sanitation in the Los Angeles area, or about 4.4 per cent of the total budget as compared with 5.36 per cent for large cities in the United States;* for a population of 1,489,238, this is under 2.2 cents per capita, whereas the average expenditure in the United States for large cities is 5.6 cents. Even if the industries' contribution were added in, making a total of about \$50,000 per year, the total expenditure is still less than 3.4 cents per capita. However, it must be recalled that the industry is paying as fees in Los Angeles and cost contribution in producing areas, a total of about \$36,500 making the actual net expenditure of tax funds for milk inspection only \$14,000 or about 1 cent per capita. If the budget appropriation for the milk inspection division were to be increased to between 5 and 6 cents per capita, it would furnish sufficient funds to meet the recommendations mentioned in this report.

Conclusions

Earnest efforts are being made by the milk inspection division to effectively perform the enormous task before it. The division is ill-housed, poorly equipped, undermanned and without sufficient administrative support. Various members of the industries being supervised by the inspectors, have ready access to the superior executive offices where they get a sympathetic one-sided hearing and can make representations which, if not false may be so colored as to obscure the facts; under these conditions decisions are often made which void the efforts of the

* See U. S. Public Health Service Bulletin 245, December, 1938.

inspectors. Nothing is more undermining to morale and disheartening to honest inspectors, and no practice will more quickly emasculate inspection service. Not only does this destroy inspector morale, but it ruins the morale of the decent element in the industry and causes all members of the industry to lose their respect for and faith in the health department. The qualifications of the average inspector in the milk inspection division are, for the most part, open to question and not so highly regarded as to justify the expectation of effective and adequate sanitary control of these important food products.

The milk inspection division is handicapped in trying to operate without adequate laws and ordinances and, in addition, is without adequate legal support. It is most unfortunate that the city milk ordinance should be permitted to lie dormant in litigation while the division is forced to resort to state laws that are inadequate, indefinite and not equal in their requirements such as score rating limits of 70, 80 or 90 being required according to grade for producing dairy farms, while pasteurizing plants handling that milk are not required to attain a comparable score of 70, 80 or 90.

There are enough large numbers of organizations that either are already maintaining good places of business or are willing to meet any reasonable standard of sanitation, that the city can proceed without hesitancy in maintaining a firm, adequate, effective and competent inspection service in the milk division. A few casualties resulting from such administrative policies are to be expected in any worthwhile program of sanitary control. It is unfortunate that a milk control program which easily could be so completely wholesome and effective should be allowed to drift and be so depreciated by such a small minority of self-interested persons.

Recommendations

It is recommended :

1. (a) That the milk control ordinance and code recommended by the U. S. Public Health Service and approved by the United States Department of Agriculture and the Conference of State and Territorial Health Officers, be adopted as a city milk ordinance; (b) that a new ice cream ordinance be provided, modeled after the Frozen Desserts Control Code of the U. S. Public Health Service.

2. (a) That adequate and effective executive and administrative support be provided for the milk inspection division; and (b) that all problems regarding the control of milk or dairy products be referred to the milk division; and (c) that all "Contracts" and "Cost Agreements" with the producing industry which tend to limit the activity of the health department be discontinued.

3. That a metropolitan milk producing inspection area be created and administered by the milk division of the city health department.

4. That closer cooperation be established and maintained between the milk inspection division and the various other divisions of the city health department, especially those in which functions overlap.

5. That additional and more adequate office space be provided in which the chief milk inspector will have a separate office.

6. That the personnel of the milk inspection division be increased sufficiently to make it an effective inspection unit and that the budget

of the milk inspection division be increased sufficiently to meet adequately its requirements.

7. That the qualifications of new inspectors be raised to require appropriate college education for appointment as inspectors of the milk inspection division; and that salaries of the qualified personnel of the milk inspection division be increased commensurate with their respective responsibilities. Graduates of university courses in dairy husbandry provide a particularly suitable source of new inspectors.

8. That more adequate, more effective and more frequent "in-service training" be provided, particularly for the older inspectors who entered the department under low qualification standards.

9. That the use of the obsolete farm and factory score card system for the rating of milk supplies be discontinued and that the use of the Dairy Farm and Pasteurization Plant Inspection Forms recommended by the Public Health Service be adopted.

10. That all inspectors be supplied with the necessary field equipment to properly conduct their work, and that sufficient supervision be provided to assure that the work is done properly; and that all inspectors be shifted periodically from one territory to another; and that all inspectors, particularly those working in pasteurization plants, ice cream factories, et cetera, and in the inspection of producing dairies, be required to wear white uniforms at all times when on official business.

11. That an inspector's travel allowance be on actual mileage basis rather than a limited flat sum so that the inspector is not penalizing himself by doing his work requiring excess mileage over the flat sum allocated, and that mileage allowance be without limit for official business.

12. That all milk and dairy products, and dairy cattle for replacements, be required to come from accredited tuberculosis free areas and that tuberculosis test certificates be kept on file in the records of the health department; and that the present practice of allowing cows known to be Bang reactors to be placed in other retail raw milk producing herds be discontinued.

13. That the volume of laboratory work on milk be decreased by 50 per cent in Los Angeles and by 75 per cent in the outside milk shed laboratories.

14. That all of the city's milk supply including certified milk, be required to be pasteurized and that more attention be given to short-time high-temperature pasteurization as a solution to many of the problems in the larger pasteurizing plants; and that serious consideration be given to the concentration of raw milk intended for pasteurization into fewer plants large enough to afford automatic pasteurization systems, such as the short-time high-temperature system; this would facilitate control and also increase assurance of more dependable pasteurization.

15. That approval of the sale of the grade of milk known as "Guaranteed" be discontinued; and that the multiplicity of different brands of dairy products, such as "Blue Top," "Gold Top," or "Red Top," be discouraged.

16. That closed delivery vehicles be required, both in the city and from the country dairy farms; and that adequate facilities for maintaining properly low temperature in transit be required.

SANITATION SERVICES

By P. A. SANITARY ENGINEER V. B. LAMOUREUX, U. S. Public Health Service

The city of Los Angeles, by reason of the size and extent of its corporate area, topography, growth, and other related factors, presents many problems in sanitary control some of which are unique in complexity or character and certainly obtain in no other city to a similar degree. The corporate area is 450.75 square miles; it is approximately 44 miles long by 25 miles wide at extreme points, with the San Pedro-Wilmington harbor area connected to the main body of the city by a 12-mile long "shoe-string" corridor one-half mile in width; it has rural areas within the corporate limits where it is possible to drive for miles without passing through thickly-settled sections; its topography ranges from low-lying areas adjacent to the seacoast, to hills and mountains within the city and includes a good-sized upland valley, the San Fernando Valley, located north of the mountains which practically bisect the city. The population of the city is concentrated in several "centers" with frequent sparsely settled areas between these multiple centers of population, which were formerly independent communities prior to annexations by the city. The corporate area of the city completely surrounds several independent corporate communities such as Santa Monica, Beverly Hills, San Fernando, and Culver City, as well as West Hollywood, an unincorporated thickly-settled area and several smaller "islands" of sparsely populated unincorporated areas of county territory, all of which have been in the path of the city's expansion but have resisted absorption.

The duties of the city health department in the general field of sanitation are carried on and enforced by five divisions within the organization of the department. Of these five, three are concerned with food sanitation and control exclusively, one is engaged in rodent control and one in general sanitation including housing. Of the three food control divisions, a discussion of the milk inspection division is presented in the preceding section of this report. Each of the other four divisions will be now discussed separately for clarity and convenience of reference under appropriate headings.

The duties of each division are similar to those presented by any large city with the exception that (1) the individual items receiving attention are both great as to the number of inspections and as to their classifications and (2) practically all nuisance complaints not of public health significance are properly referred to other city departments for appropriate action. Each division of the city health department discussed in this section, handles its own specific problems and is headed by a director (or an assistant director) and is under the supervision and general direction of the lay executive assistant to the city health officer. The actual inspection work is directed either from the central division office or from the health district offices, three of which have supervising inspectors in charge.

All the divisions visited have assembled a wealth of pamphlets, circulars, single sheets and other materials describing the activities of

the department, giving instructions when necessary for both the inspector and the interested establishment and similar information. Notices on paper and on cardboard, in Spanish and English are available for posting in public places. The public is reached through selected groups by moving pictures of activities, radio talks, lectures, exhibits and pictorial material, either in the newspapers or as part of exhibits. Newspaper publicity, both good and bad, has been received in generous measure from the local newspapers.

An office for photography under an inspector of the housing and sanitation division, has been developed to make a photographic record. The various service divisions of the department are availing themselves of the opportunity to provide their lectures with slides covering their activities.

Laws, Ordinances and Codes

The city health department of Los Angeles exercises its authority under a maze of state laws, municipal codes and city ordinances. Of the divisions considered under this section of the survey, the housing and sanitation division works under the most legal confusion and is only surpassed in this regard by the legal status of the work done by the milk inspection division, discussed in the preceding section. It is probable that few inspectors or employees of this division other than the supervisory personnel understand what authority lies behind their actions and orders. Attached is a "standard method letter" prepared by the housing and sanitation division and issued by the city health officer which lists the various activities engaged in by this division and giving the authority under which each activity is covered. Less burdensome and cumbersome are the laws and ordinances under which the other divisions operate. Similar "standard method letters" are being prepared by the other divisions in order to define the authority of each activity for the general information and understanding of its employees. One criticism of these letters is that exact names or titles of authorities are not given, neither are the dates of adoption of the law, code, ordinance, rule or regulations given nor the pertinent chapter and section thereof. These omissions depreciate the value of the letter and its usefulness to inspectors.

The city health department is authorized by the city charter, and often is compelled by law, to act as the agent for various state departments which are charged with control of certain conditions or activities and which are either unwilling or unable to actually exercise their authority through their own representatives. The most important from a public health standpoint of these state departments in the exercise, directly or indirectly, of its authority under the general health laws, the State Health and Safety Code and department rules and regulations which carry the effect of law, is the State Department of Public Health. Special acts administered by this department which must be enforced by the local health department, include such as the State Cannery Act, State Bakery Act, State Swimming Pool Act and so forth. The State Department of Agriculture has within its organization such divisions as animal industry, fruit and vegetable standardization, rodent and weed control, and others, all of which have certain jurisdiction under state law within the city, and whose rules and regulations as well as the laws under which they operate, are enforced by the city

health department. The State Labor Code, State Housing Act and other laws and regulations promulgated and enforced by the State Department of Industrial Relations govern some of the city health department activities. State acts relating to food and drugs, furniture and bedding, liquor licenses, narcotics, professional and vocational standards, and others, likewise govern the activities and constitute the authority of the city health department. It is not possible here to mention all of the state laws, codes, rules and regulations by which the city health department is governed. They are cited because city ordinances may not be adopted in conflict with state law, and certain state acts require mandatory action by the city health department and certain of its activities are possible only because they are authorized or directed by state law, and not by local ordinance.

Local ordinances under which the city health department operates and cooperates include the city charter, the municipal code, city ordinances enacted prior to the adoption of the municipal code but not repealed by nor included therein, and ordinances since adopted either as amendments or additions to the municipal code or as separate ordinances. As the city charter is the basic law governing the city and defining its powers the following comments are made on such portions as relate to the administration of and authority exercised by the city health department, particularly in the field of sanitation in which this section of the survey report is concerned.

City Charter

The city charter adopted January 22, 1925, and as amended, provides in section 150 that:

"The health department shall have the power and duty to supervise and control, under such ordinances as may from time to time be adopted by the city, and under the laws of the state and nation applicable within the city, the sanitary conditions and the general health of the city, and all matters pertaining thereto, including the sanitary condition of all schools, jails, hospitals and other public buildings, and all health establishments or institutions of whatever kind, whether public or private; and to enforce all ordinances and laws relating to public health and all rules and regulations of the department, and may call upon any police officer or officers at any time to assist in the enforcement thereof."

The above section vests in the city health department the necessary broad powers for the protection of the public health.

Section 14 provides:

"The city may make the violation of its ordinances a misdemeanor and may prescribe punishment therefor by fine not to exceed five hundred dollars (\$500), or by imprisonment not to exceed six months, or by both such fine and imprisonment."

Other sections of the charter defining the duties and authority of other city departments and the relation between these departments and the health department are cited in the following paragraphs:

Section 44, subsection 9, provides that the city clerk

"shall make out, sign and deliver to the controller all licenses other than building permits, and perform such other duties as are, or shall be, imposed by this charter or by ordinance."

Section 90 states, in part:

"The department of building and safety shall have the power and duty to enforce all ordinances and laws relating to the construction,

alteration, repair, demolition, or removal of buildings or structures in the city, and to the installation, alteration, repair, use and operation of all heating, plumbing, lighting, ventilating, refrigerating, electrical and mechanical appliances and equipment therein; * * *."

Section 139 provides that:

"The board of harbor commissioners shall have power and it shall be its duty:

"(c) To regulate and control the construction, maintenance, operation or use of any railroad, wharf, warehouse, or other utility, structure, improvement or appliance used in connection with, or for the accommodation and promotion of commerce, navigation or fishery in the Harbor District";

Section 172 provides that:

"The department of parks shall have the power and duty:

"(3) To construct and operate, sell, rent or lease concessions or privileges to be exercised in the parks for the operation of boathouses, refreshment stands, restaurants, amusement places or devices, parcel checking rooms and lockers and other similar purposes";

Section 190 provides that:

"The department of playground and recreation shall have the power and duty:

"(1) To manage and control the playgrounds, bath houses, recreation centers, recreation camps and recreation beaches owned or operated by the city of Los Angeles";

"(4) To construct and operate, sell, rent or lease concessions or privileges to be exercised in the playgrounds, bath houses, recreation centers, recreation camps and recreation beaches, for the operation of boat houses, refreshment stands, restaurants, amusement places or devices, parcel checking rooms, lockers, and other similar purposes";

Section 234 provides that:

"The board of public works shall have charge, superintendence and control, except as otherwise specifically provided in this charter:

"Of the design, construction and maintenance of all sanitary and storm sewers and drains of the city, and all connections therewith";

Section 251, subsection (b) in part provides in regard of the municipal housing commission that:

"The board shall have the right and power:

"To provide, by purchase, lease, condemnation construction or otherwise, and to improve, rent, manage, sell and repurchase lands, dwellings, apartment houses, lodging houses or tenement houses, for the purpose of improving the health, safety and welfare of the inhabitants of said city, by providing homes for those who might otherwise live in overcrowded tenements, unhealthy slums, or the most congested areas";

Article 27 of the city charter deals with the department of education. The relations between the city health department and the board of education have been discussed elsewhere in this report.

As the municipal code was prepared under the direction of the city attorney, reference is made again to the city charter before the provisions of the municipal code are discussed. Under the charter the city attorney is an elective officer of the city and his office combines the duties formerly divided between his office and that of a city prosecutor. It is upon the office of the city attorney that the city health department depends for the proper drawing of proposed ordinances and for the prosecution of violations of the city health code or of state laws. To facilitate utilization of the services of the city attorney's office, the city health department owing to the technical aspect of its work, should be authorized to employ an attorney to handle that depart-

ment's business in the city attorney's office; however, the employment of such departmental attorneys is limited, under the charter as it now stands, to the board of water and power commissioners, the board of harbor commissioners and any board in control of a department of the city government operating a public utility owned by the city.

Municipal Code

The municipal code was developed after an immense amount of painstaking work under the direction of Ray L. Chesebro, city attorney. Extracts from a foreword by Judge Chesebro are hereby given in explanation of its seeming contradictions and inconsistencies:

"All ordinances or parts thereof declared invalid by the courts were omitted. Penal ordinances which have been displaced by state law, either in whole or in part, were omitted.

"Ordinances relating to administrative matters, such as the conduct of public improvement proceedings and the like, are not included but are still in effect.

"The personnel used in the preliminary process of codification was made available by the SERA and WPA.

"The use of this code undoubtedly will reveal opportunities for clearer statement and more adequate arrangement. It is hoped that such matters will be called to the attention of the city attorney in order that betterments may be effected at the first opportunity and that this code may increase in usefulness to officials and members of the public."

The voluminous municipal code (Ordinance No. 77,000 (New Series), effective November 12, 1936) was examined in connection with this survey primarily for conflicts in authority in public health work and provision for voluntary or mandatory cooperation between the city health department and other city departments or agencies. The following sections of the municipal code are cited as principal sections pertinent to the work of the city health department.

Section 21.10—Permit Requirements (Chapter 2—Licenses, Permits, Business Regulations Article 1—License Taxes):

No person shall engage in any business required to be licensed under the provisions of this Article until such license is first obtained; no license shall be issued hereunder when the provisions of some other Article of this Code require a permit to be obtained as prerequisite to entering into such business, until such permit is first applied for or obtained. Any license issued in violation of the provisions of this section shall be void.

Section 22.10 lists those businesses which must secure permits from the police department. Included among those of particular interest to the health department are public baths, feed stables, livery stables, massage parlors and stock yards. Section 27.02 deals with requirements for permits to conduct baths of all types at 27.03 with requirements for the conduct of massages, rubs and magnetic treatments. No reference is made in either of these sections to the city health department, yet sections 39.15 to 39.20 deal with city health department requirements (excepting permits) for substantially the same types of business. An important angle to this situation, similar to other instances, is that time of employees of the health department is required for the inspection and control of these establishments, yet the permits are issued by another department without reference to the city health department and the fees collected, another indication that permit fees are required for revenue-producing purposes only and not for services

rendered. Section 27.06 deals with livery and feed stables. Provision is made for mandatory inspection of the premises by the city health officer before permits are issued and fees collected by the police department. Section 34.00 covers the keeping of animals, including stabling, within the city. Section 27.07 deals with hay markets, cattle sales stables and stock yards. No reference is made to the health department nor does the code require inspection by the health department of these establishments, although they are certainly as important, from the standpoint of public health, as feed and livery stables for which such inspection is required.

Chapter 3 of the municipal code, "Health and Sanitation," referred to in this survey as the "City Health Code," deals entirely with the duties and authority of the city health department except where specific reference is made to other departments, commissions or agencies. This portion of the municipal code has been commercially printed in a separate booklet, also containing advertisements, entitled "Official Health Ordinances, 1938, City of Los Angeles—Compiled under the Direction of the Department of Health." This publication is not printed by the city, either by itself or by contract. The costs of printing and binding are paid entirely through advertisements and contributions derived from establishments and businesses which largely come under the jurisdiction of the city health department and for the conduct of which inspection by and the payment of fees for permits to the city health department is required. The list of advertisers is illuminating. Also included are advertisements bearing such captions as "Best Wishes" and "From a Friend." There is no inference that the employees of the city health department have "shaken down" any of these establishments for the small sum involved, as they represent but a small part of the many under inspection, but the money is collected by health department employees and the health department can not escape implications. Some pressure on the department may result because of contributions to the publication. The practice has prevailed for several years but it should be discontinued and the health code issued and paid for by the city.

Article 3 under Chapter 5, "Public Safety and Protection," deals with animals and fowls and concerns the humane department primarily. Section 53.03 gives members of this department authority to enter on private premises for the discharge of their duties. Section 53.08 prohibits the grazing, breeding or staking out of any animal, except cats and dogs in the bed of the Los Angeles River. Section 53.31 requires the humane department to notify the city health officer of known or suspected rabid dogs or other animals. The quarantine and release of such dogs may be accomplished only by the city health officer. Authority is also given him under this section to enter on private premises for the examination of animals. If rabid, the animal is destroyed by the humane department and cremated in the city incinerator.

Article 4 under Chapter 5 relates to the independent board of mechanical engineers, its duties and powers. There is no reference to the city health department in this article even where the two departments are commonly interested in a device which might constitute a cross-connection to a public water supply.

Chapter 6 deals with public works and property. Article 4 of this chapter covers sewers, water courses and drains. Section 64.01 requires permits for vehicles used for the transportation of contents of cesspools to be emptied into the public sewer system. The board of public works must be satisfied that no hazard to the public health will exist in granting these permits. Section 64.02 provides for rules and regulations covering the emptying of cesspool-cleaning vehicles into the sewer system. Article 6 relates to garbage and refuse collection. The essential portions of this article have been covered under the discussion on this municipal function. Section 66.07 requires the heating of garbage at 170° F. for 30 minutes during emergencies such as epidemics of disease communicable to man or animal, before transportation over highways or railways but garbage from dwellings, boarding-houses, restaurants, hotels, apartments or eating houses may be transported cold to a designated place for heating. Section 66.15 permits the burning of rubbish on private property under certain conditions.

Chapter 9 deals with building regulations administered by the board of building and safety commissioners. Article 1 requires the reconstruction, alteration or additions to buildings to be done under a permit of the board and to comply with the board's regulation and be done under inspection. The routine inspection provisions of the chapter are not retroactive as regards buildings constructed prior to adoption of city ordinance No. 28,700, November 13, 1913.

91.259. Food Establishments.

(a) Compliance Required. Every food establishment shall comply with the provisions of this article except as hereinafter provided in this section.

(b) Floors. Every creamery, dairy products establishment, ice cream establishment, bottling establishment, or similar establishment, shall have floors of smooth concrete, tile or equally durable and water-proof material, in every preparation room, operating room, mixing room, bottling room or similar room, of any such establishment.

The floor of every food establishment, not mentioned in the first paragraph of this subsection, shall be of smooth concrete, tile, tight-fitting tongued and grooved lumber, or of other equivalent material.

No floor, or portion thereof, of any bottling establishment, bakery or box lunch establishment shall be more than four (4) feet below the sidewalk or ground level adjacent to such floor.

Every floor in any food establishment shall have a smooth surface which can be easily and thoroughly cleaned.

Every slaughterhouse shall have floors when and as required by section 91.260.

(c) Walls and Ceilings. The walls and ceilings of every such food establishment shall be well plastered, or be constructed of smooth, tight-fitting materials, without cracks, crevices or similar defects, so that such walls and ceilings shall be painted when required by the health department of this city.

Every slaughterhouse shall have walls and ceilings when and as required by section 91.260.

(d) Ceiling Height. Every such room or portion of any building shall have a clear ceiling height of not less than eight (8) feet, measured between the finished floor and the finished ceiling.

(e) Ventilation. Every such room or portion of any building shall be well ventilated by windows, ventilated skylights, or by an exhaust system of ventilation which will change the air not less than once every fifteen (15) minutes, or by other equivalent methods.

(f) Rat Protection. Every such room or portion of any building shall have every door, window or other opening therein leading to the exterior or leading to any portion of the building not used as a food establishment, protected by means of a tight-fitting door, window or gate, without openings therein, or having every

opening therein not more than $\frac{1}{4}$ of an inch in width. Any wire mesh screen shall be of not less than No. 14 W and M gauge wire.

(g) Toilet and Dressing Rooms. Every such food establishment shall have a separate toilet room or rooms, and a separate dressing room or rooms, or a combination toilet and dressing room or rooms, for each six employed or working in such food establishment.

Every such toilet or dressing room shall be located in such food establishment, or be directly adjoining some portion thereof.

Every such toilet room containing a water-closet or urinal shall have not less than two (2) self-closing doors, separated by a vestibule not less than four (4) feet in its least dimension, intervening between such toilet room and every portion of the food establishment.

Every such toilet room, dressing room and vestibule shall be enclosed with smooth surfaced and tight partitions extending from floor to a tight ceiling at the top thereof.

There shall not be any door, window, or opening in any wall of any toilet room or vestibule therefor, separating such toilet room or vestibule from any portion of a food establishment, except the doors hereinbefore allowed in this subsection.

The inner surface of every such vestibule, toilet room or dressing room shall be well plastered or well painted.

Every such vestibule, toilet room or dressing room shall be well lighted by electric lights, or other approved artificial lighting.

(h) Plumbing. Every food establishment shall have not less than one (1) water-closet and one (1) wash-basin provided with running hot and cold water, for each fifteen (15) persons, or fraction thereof, of each six employed or working in such food establishment, and such plumbing fixtures shall be located in toilet or dressing rooms as provided in subsection (g) of this section: provided, however, that a water-closet shall not be required for any such establishment containing not more than 500 square feet of floor area, in the event that such establishment is first approved by the health department.

Every such food establishment shall have not less than one (1) kitchen sink, provided with running hot and cold water.

(i) Screens. Screening of doors, windows or other openings shall be provided when and as required by the health department.

91.260. Slaughter Houses.

The floor of every room or portion of any building, in which poultry, rabbits, sows, steers, hogs, sheep, horses, mules, or other animals, are slaughtered, shall be of cement, tile, or equally durable and water-proof material. Every portion of such floor shall be sloped so that same will drain into a gutter.

Every room, or portion of any building, used for slaughtering purposes shall be completely enclosed with tight walls, except for the necessary doors and windows therefor. The inner surface of such walls, and both sides of any partitions therein, shall be of smooth concrete, tile, galvanized iron with soldered joints, or other equally durable and water-proof materials to a height of not less than 6 feet above the floor.

No poultry or rabbit slaughter house shall be located within 50 feet of any dwelling, apartment house, hotel, school, church, hospital or public building.

91.261. Concrete Floors Required. (Permits—tile, etc.)

- (a) Public baths and shower rooms.
- (b) Laundries.
- (c) Wash racks.
- (d) Stable. Not applicable to any box stall when first approved by the health department.
- (e) Undertaking establishment.

Section 91.262 requires the provision of watercloset or privy where two or more persons are employed four or more hours per day on any building job under the jurisdiction of the building department. Rules for the construction and location of a privy are given, with reference to property lines, buildings, drain and sidewalks, but no restrictions as to proximity to private or public wells. No reference is made to the city health department.

Article 4 of Chapter 9, relates to plumbing and drainage under the jurisdiction of the board of building and safety commissioners unless otherwise specifically mentioned.

94.01. Permit Required.

(b) No person shall erect, construct, install, alter, repair, move, remove, add to or change any plumbing or maintain or use any plumbing in this city without first obtaining a permit so to do from the board.

According to section 94.02, proposed work must also conform to the provisions of the State Housing Act. Section 94.25 provides for inspection of cesspools and septic tanks by the building and safety department but makes no reference to the city health department. Section 94.56 requires every building used for living and sleeping purposes to be provided with plumbing fixtures, properly located, in accordance with the State Housing Act. Section 94.57 specifies plumbing required in school buildings, including drinking fountains. Section 94.59 provides for ventilation of toilet rooms in accordance with provisions of the State Housing Act. Section 94.63 requires the use of a connection to sewer, cesspool and septic tank for every building in which plumbing for sanitary purposes is installed. Section 94.64 relates to house sewer construction, section 94.65 to cesspool construction, section 94.66 to cesspool seepage hole construction, and section 94.67 to the abandonment of cesspools. None of the sections mentioned make any reference to the city health department.

Section 94.68 relates to septic tank construction, but does not provide for approval by the city health department. It does provide for inspection by the city health department and requires that the tank shall be maintained in a sanitary condition at all times. Section 94.69 prohibits the use of cesspools or septic tanks where city sewerage is available with certain exceptions and states, "No person shall use or maintain any privy or privy vault, which in the judgment of the board (of building and safety commissioners) is unsanitary or a menace to life or health." It further provides that the board may order the discontinuance or use of any cesspool, septic tank, privy or privy vault violating any provision in this section.

Of particular interest here is a provision in the city charter (sec. 93) which gives the board of building and safety commissioners the power to make slight modifications for individual cases in the provisions of the building ordinances. This power in effect can veto any order given by the city health officer to abate any nuisance detrimental to the public health in his opinion from any cesspool, septic tank or privy; according to the city attorney section 33.13 of the code provides only for permissive city health department action.

94.76. Dangerous or Insanitary Construction (in part).

"Whenever it comes to the attention of the department (of building and safety) that any construction or work regulated by this article is dangerous, unsafe, insanitary, or a menace to life, health or property, or is in violation of this article, in the judgment of said department, the said department may order any person, using or maintaining any such condition, or responsible for the use or maintenance thereof, to discontinue the use or maintenance thereof, or to repair, alter, change, remove or demolish the same as said department may consider necessary for the proper protection of life, health or property;"

The purpose of the foregoing discussion of laws, codes and ordinances has been to show some of the confusion which confronts the

city health department with regard to enforcement of its own ordinances, those of other departments, state laws and rules and regulations of state agencies. A further purpose is to indicate the power and authority granted under the charter and the municipal code to other city departments in situations of public health significance in which the city health department is directly interested. That this power for most part has not been used is a tribute to the various boards of commissioners who could have exercised these powers, and to the board of health commissioners and the city health officer who have not raised the issue. However, regardless of whether or not the health department is named specifically in connection with any duties of any department which have or merit public health consideration, the city health officer is fundamentally and legally responsible for the public health. It appears to be the general policy of those city departments or agencies engaged in functions which are or border on public health, to seek the advice and assistance of the health department but exceptions apparently occur in certain agencies or departments which employ personnel with public health training or experience.

The city health code which is that portion of the municipal code relating to health and sanitation and dealing directly with the rights, powers and functions of the city health department is not complete nor entirely dependable as it stands; some of the sections are nullified by the inclusion of permissive clauses. Ordinance No. 68,600, approved November 25, 1930, as amended by Ordinance No. 68,910 and others, provided a more complete and thorough health code; however, these were repealed in part by the adoption of the municipal code, Ordinance No. 77,000, but are still effective where not in conflict with the municipal code or with state laws. Unfortunately it is not possible to compare these two codes in detail due to the revision now in course of the present State Health and Safety Code by the State Legislature and due to the passage of other state laws which may affect city ordinances.

With a view to clearing up what appears to be a quite confused situation, the city health department should undertake, with the assistance of the city attorney, an up-to-date codification of the city health laws and ordinances. It is further suggested that manuals be prepared for the guidance of employees to include state laws relating to the department's powers and activities and city ordinances in effect; this should be in loose-leaf form to facilitate keeping it current. It is also suggested that the present ordinances be reviewed and revised to eliminate joint jurisdictions and permissive clauses in matters of public health significance. Further it is recommended that these manuals be issued by the city and not by private subscription through paid advertising.

In the following section there will be reviewed the present status of the administration of matters of public health significance which under the various state laws, the charter, municipal code and city ordinances are responsibilities shared by the city health department with other departments or agencies of the city government, or entirely assigned to those departments or agencies.

Department of Public Works

The office of the city engineer in this department has under its jurisdiction sewerage, both sanitary and storm-water; sewage disposal, excepting individual domestic; garbage and other waste collection

and disposal; the sanitation of public buildings; dumping, either legal in designated places, or illegal; and cleaning of lots.

Complaints or requests for investigations pertaining to any of these activities when received by the city health department are referred with or without recommendations to the city engineer for consideration and action. Cooperation is good and is maintained on a very friendly basis. A further discussion of some of these functions appears in another part of this report.

Department of Building and Safety

This department and the city health department are closely inter-related both by the municipal code and the State Housing Act with regard to new and retroactive clauses applying to plumbing, housing, food-establishments, rat-proofing, bath houses and garbage incinerators in hotels and apartments. Septic tanks for domestic sewage disposal require joint approval of both departments. Plans relating to improvements to buildings, particularly for rat-proofing, are submitted by this department to the health department for consideration and prior approval. Relations between the two departments are excellent.

Harbor Department

The harbor department under the city charter is empowered to regulate and control city properties placed under its jurisdiction, including utilities serving its harbor district properties. The harbor department has not attempted to undertake on these properties those public health functions which are exercised by the other several city departments. The city health department is called upon to act on the city properties under the jurisdiction of this department in the same manner as elsewhere. The chief problems are attacked jointly, these being the control of rodents, principally rats, and proper sanitation within the area. The relations between the departments are excellent, particularly between the San Pedro district offices of the two departments.

Department of Parks

There is little need for much cooperative activity between this department and the city health department. Under the city charter the department of parks is empowered to establish, maintain, operate, manage and control parks within and without the city limits and to construct, operate, lease, sell or rent concessions and privileges (restaurants, refreshment stands, et cetera). Some recreational facilities are provided and supervised by this department. In the operation of the parks, many individual water supplies have been developed, for public as well as park usage. Samples from these supplies are collected by the health department at regular intervals and a check on the supplies is maintained. Concessions similar to any establishments which would come under the jurisdiction of the health department are handled in the same manner as those establishments elsewhere. Public convenience stations are inspected usually on complaint only.

Department of Playground and Recreation

Under the city charter this department is empowered to establish, maintain, operate, control or manage playgrounds, bath-houses, recreation centers, recreation camps, recreation beaches and similar recreation

facilities owned and operated by the city of Los Angeles within or without the city limits. The department is also authorized to construct and operate, sell, rent or lease concessions or privileges for the operation of boat houses, refreshment stands, restaurants, amusement places and other similar purposes. Within this department's jurisdiction are the public swimming pools (other than public school) public bathing beaches and public camps. The city health department issues required permits to concessions as to similar establishments elsewhere and maintains a sanitary and laboratory check on swimming pools. Bathing beaches and bath houses are checked whenever possible, although the health department is able to give a minimum of service at times of maximum demand or use, Saturday afternoons, Sundays and holidays. Public convenience stations are checked for adequate and proper sanitation.

Public camps or other recreational areas, including parks maintained by the department outside of the city limits are not checked or supervised in any manner by the city health department. Here we have a department of the city government of Los Angeles providing recreational facilities solely for the use of its citizens in areas outside the city limits without being able to avail itself of the services of the city health department such as are available to it within the city. The protection of the health of these citizens of Los Angeles while in these outside areas is dependent upon the local health department, if any, or the State Department of Public Health. Two of these camps are located in the San Bernardino Mountains, 75 and 90 miles from the city, and another in the high Sierra Mountains, 335 miles from Los Angeles. Relations between this department and the health department are excellent.

Police Department

Joint jurisdiction of the police department and the city health department exists over livery stables, massage parlors and the city jails; sanitation inspections of the latter are made by the health department and recommendations are made to the police department. The city mother, a police matron with combined welfare and police duties, cooperates closely with the health department. The police also assist inspectors in cases of refused or difficult inspections, and serve warrants for arrests for violations of health department ordinances or health sections of the municipal code.

Fire Department

This department works closely with the health department in the enforcement of nonpublic health provisions of the State Housing Act, such as relate to fire escapes, fire hazards, house incinerators, yard incinerators and so on.

Municipal Housing Commission

The municipal housing commission is empowered under the city charter. To provide, by purchase, lease, condemnation or otherwise, and to improve, rent, manage, sell and repurchase lands, dwellings, apartment houses, lodging houses or tenement houses, for the purpose of improving the health, safety and welfare of the inhabitants of said city, by providing homes for those who might otherwise live in overcrowded tenements, unhealthy slums, or the most congested areas."

This commission is authorized to engage in a housing program, with the health of citizen slum dwellers as a primary objective but the city health department is not referred to in the charter as a consultant or as having any jurisdiction. However, it is reported that the commission is inactive and therefore there has been no demand or need for health department cooperation.

Housing Authority

This authority is an independent agency set up in the city government to administer slum-clearance and low-cost housing projects. It was created under an enabling act of the State Legislature to permit the city to comply with the provisions of the Federal Wagner-Steagall (slum-clearance) Act. The city health department is cooperating with this authority by securing information on the extent and location of present substandard housing within the city which is intended to lead up to the vacating or demolition of such property.

Board of Mechanical Engineers

The board of mechanical engineers is an independent board in the city government which has authority and jurisdiction over all boilers, pressure vessels, elevators, hoists, cranes, and similar equipment within the city. It makes inspections of steam boilers, steam kettles, air tanks, sprinkler tanks, steam retorts, steam vacuum cookers, hot-water heaters (except domestic), hot-water storage tanks, elevators of all types, lifts and hoists. The city health department's major interest in the work of this board is in the discovery of cross-connections of possibility of back-siphonage in automatic flush toilets affecting the sanitary quality of the public water supply. The health department has been able to interest and enlist the support of the board in the discovery and elimination of these hazards. The health department is also interested in the proper installation of steam kettles, vacuum cookers and retorts used in preparation of foods.

Department of City Planning

The relation of the city health department to this agency is principally in regard of observance of zoning ordinances affecting location of processes having public health import and prior reference in case a change may be requested. This department and the health department also have a joint jurisdiction over public camps including automobile and trailer camps.

Humane Department

The humane department is primarily interested in the welfare of animals and in the collection of animal license fees. A city pound is provided wherein stray and unlicensed animals may be impounded and destroyed if unclaimed. The city health department is vitally interested in the prevention of the occurrence and spread of animal-borne diseases, principally rabies. The joint interest of the two departments officially lies in rabid animals only; section 53.31 of the municipal code provides that the humane department shall notify the city health officer of known or suspected rabid dogs or other animals. The animal can be quarantined only by the city health department and only can be released by the health department. The determination as to whether the animal may be rabid rests with the city health department but the

destruction of the animal, if rabid, is the duty of the humane department. Rabies quarantine, prevention and control is handled by the quarantine and morbidity division of the city health department but in the outlying sections inspectors of the division of housing and sanitation may be and are called upon to investigate suspicious biting or clawing by animals and to catch and impound suspected animals, with or without the assistance of the humane department.

Department of Water and Power

This department in the production and distribution of the public water supply, has a very definite function in which the city health department is vitally interested. The water supply of the city of Los Angeles, measures taken for its protection and the relationship existing between the two departments will be discussed in detail under the section on water supply.

Department of Education

The city charter provides that administration of the public education in the city shall be vested in an independent board of education. The charter also provides that the city health department shall supervise and control all matters pertaining to the general health of the city including the sanitary condition of all schools. However, the school district overlaps the city boundaries and includes both other incorporated communities and country areas; it is not amenable to city ordinances or the provisions of the city charter, but is governed by state laws. The official health agency of the board of education under state laws is the State Board of Health. Accordingly any public health work done by the city health department in the schools is voluntary only and is at the request and with the consent of the board of education, and is confined to the corporate area of the city.

School sanitation is undertaken and controlled by its own inspection service. At present the school system of inspection is weak in that the school board has in its employ only one full-time physician whose duties include the control of communicable disease in school rooms and sanitation in the 392 schools in the district having a total school population of approximately 300,000. This officer is competent and capable and has had years of previous experience in the city health department, but it is obviously impossible for one individual to cover the ground necessary or even to make one thorough and complete examination of each school during the school year. He is dependent upon mandatory reports of school physicians and nurses, who may have no public health training and upon voluntary reports of principals and teachers. He must hold himself on call only. According to information obtained all the public schools within the city are served by public water supplies and public sewers. All drinking fountains in the new schools and the schools which have been rehabilitated following earthquakes are satisfactory but there are left a few of an old unsatisfactory type in the older schools. All buildings are equipped with lavatories and flush toilets.

The city health department does maintain inspection and check on the school swimming pools and on school cafeterias and lunch rooms. All other sanitary matters concerning schools are handled by correspondence. No reports are submitted by the school department to the

health department for its information and record. The board of education follows the procedure set for it by the State School Code and state law and the city health department must acquiesce in this procedure, cooperating to the extent requested and permitted by the board of education. However cooperation between the two departments in general is good and there are no conflicts; steps have been taken to attain a closer relationship.

Private Schools

There are within the city 90 private schools and colleges which all receive some sanitation service from the city health department to a degree permitted by the governing bodies. Generally the schools are very cooperative and receptive to health department inspections and recommendations. There is no regular inspection service provided. The housing and sanitation division also recently completed a survey of 15 parochial school cafeterias and a report was submitted to the governing authorities. Recently a letter was sent out by the city health department to all of them with regard to possible contamination of drinking-water systems by cross-connections and plumbing drains which permit back-siphonage. Correction is being secured slowly.

County Health Department

Cooperative activities in sanitation fields with the county health department apparently depend upon the voluntary action and friendly relationships between many of the division heads of both departments. The director of the division of sanitation and housing, being more conciliatory than some others in the city health department, perhaps due to legal training and therefore legal caution, is able to report some cooperative activity with the county health department. Information is freely exchanged. The county health department issues permits for bakeries, beverage plants and so forth located in the county but operating in the city, and likewise the city does the same for similar businesses located within the city but also subject to county control; inspections by one agency are accepted by the other, and in many cases joint inspections of establishments are made.

Other Health Departments

Other city health departments either within or without the county cooperate on a mutual basis. Nearby city health departments such as those of Long Beach, Pasadena and Beverly Hills exchange information, accept inspections by the city health department, make reciprocal inspections and also participate in some joint inspections with the city health department of Los Angeles.

State of California

Many of the state agencies and departments with which the city health department cooperates or whose regulations are mandatory upon the department for enforcement in the field of sanitation services, have been cited elsewhere in this report and the specific items of sanitation inspection services are discussed hereafter. The state agencies include the Department of Industrial Relations, Department of Public Health, Department of Agriculture, Board of Equalization (liquor permits to food establishments) and the Department of Professional and Vocational Standards. Cooperation with the Fish and Game Commission

in the control of the pollution of waters used for fishing and which may also be used for drinking water or for recreational purposes, is maintained. Cooperation with city-county flood control districts is obtained in the maintenance of ditches and laterals, drains, outlets and control of rights of way.

United States Government

Cooperation is maintained with the Food and Drug Administration, Bureau of Animal Industry and Bureau of Agricultural Economics of the Federal Department of Agriculture. The Army and Navy bases at San Pedro request and receive assistance. The Bureau of Prisons of the Department of Justice has been assisted with the development of the Terminal Island Correctional Institution. Assistance has been given, on request, to the U. S. Immigration Service, the U. S. Public Health Service, U. S. Customs Service and the U. S. Coast Guard. Many of the newer federal agencies have received and have given assistance. Until recently the WPA temporarily has rendered needed assistance to the city health department and at present the NYA is also furnishing needed additional clerical assistance.

Civil Service

Civil service as applicable to the health department is covered elsewhere in the report of this survey. Cooperation with the commission consists largely in the preparation of qualifications and duties of positions to be filled, which statements, however, are not binding on the commission. Records of employees are kept by the commission and are available to the heads of the health department.

Bureau of Budget and Efficiency

Section 398 of the city charter provides "that the bureau of budget and efficiency shall investigate the various departments of the city, their administration, the duties of positions therein, their methods, and their standards of efficiency, and shall recommend changes to promote economy and efficiency." The director is further empowered to review the annual budget and make recommendations thereon to the mayor and city council and shall conduct studies and investigations relative to budgetary needs and the expenditure of appropriations.

It is reported that the bureau of budget and efficiency recommended the permit fee system inaugurated July 1, 1927, under which the city health department labors, and recommended the increase in fees in 1934-35 as revenue-producing measures, with a penalty of reduced appropriations for failure to produce increase in revenue. As over half the revenues produced by the health department are collected by its housing and sanitation division, the public health work of the inspectors has been decreased through delinquent fee-chasing.

Section 21.10 of the municipal code and section 31.07 of the city health code, which is also a part of the municipal code of the city of Los Angeles, provide that a license to engage in business for which a permit from the health department is required, may not be issued by the city clerk's office until such permit shall have been issued or application therefor made to the board of health.

The system requiring the issuance of permits by the city health department for a fee, preliminary to the issuance by the city clerk's office also for an additional fee, of licenses required to be obtained

annually by specified businesses and services under city ordinances, was inaugurated July 1, 1927. These permits are good for one year from date of issue. About 1 per cent delinquency is estimated with no penalty prescribed therefor, as is provided for delinquency in securing the licenses. The provision requiring prior issuance of permit by the city health department before a license to do business may be issued by the city clerk, has saved the health department much trouble in enforcement of permit requirements and it is reported that the city clerk's office never willingly violates this provision in the code. At the present time the following permits and fees are required under the provisions of section 31.12 of the city health code, except that no fees are required when the business is conducted for charitable purposes only.

Summary of Schedule of Fees Prescribed in Section 31.12 of City Health Code

(a) Apartment houses and courts:		(q) Fertilizer manufacturer or wholesale dealer	\$25.00
(1) 5 to 20 apartments	\$2.00	(r) Food or drink (miscellaneous) products establishment or manufacturer	5.00
(2) 21 to 50 apartments	4.00	(s) Fumigating: vermin, termite or rodent	5.00
(3) 51 and over apartments	6.00	(t) Fish broker	25.00
(b) Bakery	5.00	(u) Fish market, wholesale	25.00
(c) Bakery distributor	5.00	(v) Fish market, retail	5.00
(d) Barber shop	5.00	(w) Fish distributor, wholesale or stock wagon operators that sell and distribute fresh fish for resale: for each conveyance	25.00
(e) Bottling water, beverage and table water or bottling and manufacturing	40.00	(x) Fish peddler, retail	5.00
(f) Box lunch or wholesale sandwich manufacturing	5.00	(y) Fruit and vegetable market, wholesale	10.00
(g) Birth or death certificate	1.00	(z) Fruit and vegetable market, retail	3.00
(h) Boarding school:		(aa) Fruit and vegetable truck and wagon peddler	3.00
(1) 19 or less boarders	10.00	(ab) Hog ranch or swine ranch	50.00
(2) 20 or more boarders	20.00	(ac) Hospital, sanitarium, maternity or lying-in asylum:	
(i) Boarding home, day nursery	1.00	(1) 15 beds or less	15.00
(j) Wholesale candy or confectionery manufacturer	10.00	(2) 16 beds or more	25.00
(k) Hotel and apartment house having less than 5 guest rooms and 5 apartments and housing 6 or more persons not related to one another	2.00	(ad) Hotel:	
(l) Cannery	25.00	(1) 5 to 50 rooms	4.00
(m) Confectionery or soda fountain	5.00	(2) 51 to 200 rooms	8.00
(n) Cold storage warehouse, per 100,000 cu. ft. refrigerating space	5.00	(3) 201 rooms and over	12.00
(o) Cosmetological establishment	5.00	(ae) Laundry, public power	10.00
(p) Dairy products depot (other than a dairy products manufacturing or processing plant) in which dairy products are stored and from which wholesale or retail deliveries are made	25.00	(af) Laundry, public hand	3.00
		(ag) Linen and towel supply house	10.00
		(ah) Butter manufacturing, processing, mixing, re-mixing or cutting	25.00
		(ai) Manufacturer of ice cream, ice cream mix, imitation or frozen dairy products, ice	

**Summary of Schedule of Fees Prescribed in Section 31.12 of City Health Code—
Continued**

	milk, ice milk mix, flavored water ices or sherbets -----	\$25.00	(at) Wholesale milk distributor for resale-----	\$25.00
(aj)	Manufacturer of cottage cheese or sour cream or buttermilk -----	25.00	(au) Miscellaneous food or drink products establishment or manufacturer -----	5.00
(ak)	Manufacturer or wholesale distributor of flavored whole milk drinks or flavored skim milk drinks -----	25.00	(av) Permit to inter or remove human bodies -----	1.00
(al)	Mattress renovator or pillow renovator -----	5.00	(aw) Permit to remove cremated human remains---	.50
(am)	Meat market, wholesalers and jobbers -----	25.00	(ax) Poultry railroad car inspection: per car-----	10.00
(an)	Meat market, selling fresh meats: 3 or more cutting blocks or tables---	10.00	(ay) Poultry dealer or broker, wholesale -----	25.00
(ao)	Meat market, selling fresh meats: less than 3 cutting blocks or tables---	5.00	(az) Poultry market (slaughter) -----	25.00
(ap)	Meat distributor, wholesale or retail (other than slaughter houses) that distribute fresh meats, smoked or processed meats or meat products to the consumers or for resale by peddlers for each distributing business and for each peddler conveyance	10.00	(ba) Poultry truck operator: for each conveyance---	25.00
(aq)	Medicine, drug, food or chemical sample distributor -----	5.00	(bb) Public bath-----	3.00
(ar)	Milk wholesale producer, or any person either located within or without this city who produces milk and neither bottles nor pasteurizes such milk at the dairy and disposes of such milk to less than 3 persons that dispose of such milk or dairy products produced therefrom within this city -----	5.00	(bc) Public camp-----	10.00
(as)	Milk producer-distributor, or any person who produces milk whether within or without this city for either retail or wholesale disposal within this city, or who either bottles or pasteurizes at a dairy: for each such farm ranch, or other premises upon which such milk is produced or bottled or pasteurized -----	25.00	(bd) Seller or distributor of rabbits (except in connection with rabbit slaughter houses that pay a permit fee to the department) -----	15.00
			(be) Rabbit slaughter house---	15.00
			(bf) Raviola, tamale or tortilla manufacturing:	
			(1) 500 lbs. per week or less -----	5.00
			(2) Over 500 lbs. per week -----	25.00
			(bg) Restaurant or lunch stand	5.00
			(bh) For every person engaged in the business of distributing milk, cream, buttermilk, cottage cheese, cultured skim milk, cultured whole milk, or any other dairy product to the consumer by the use of or through the use of any vehicle, self-propelled or otherwise -----	25.00
			(bi) Sausage factory or meat processing plant up to 5,000 lbs. per month---	25.00
			5,000 to 50,000 lbs. per month -----	50.00
			50,000 to 100,000 lbs. per month -----	75.00
			100,000 lbs. or over, per month -----	100.00
			(bj) Soda fountain with lunch counter -----	5.00
			(bk) Stable -----	5.00
			(bl) Veterinary hospital----	10.00
			(bm) Wiping rag laundry, etc.--	10.00
			(bn) Wiping rag dealer, wholesale or importer-----	10.00

It appears that the original establishment of a fee system for permits, and the later increase in fees, primarily reflected revenue-producing measures with a corresponding cut in appropriations probable for inspection services of the city health department if they did not produce the revenues. The use of permits from the city health department as a means of raising city revenue introduces principles which warrant some examination. A health department is or should be exclusively concerned with matters that pertain to the protection and preservation of the public health. The fees for permits are in a sense, special taxes, in addition to license fees levied against specific businesses, and the health department is made to be a revenue producing and revenue collection agency, activities quite alien and prejudicial to its primary function. If special taxes are to be levied via permit and license systems for revenue producing purposes, they should not be camouflaged as public health activities and the health department should not be required to act as a revenue producing or revenue collecting agency and to thus actually or potentially compromise its primary function of safeguarding the public health.

Time must be spent on the collection of permit fees and the follow-up of delinquent permit accounts which largely offsets the advantage in supportive appropriations to the department as a result of these fee collection activities. The city health department is, or should be, maintained for the sole purpose of protecting the public health—no less and no more—and it should be maintained free from such primarily revenue raising activities. If permit fees are to be required as part of the price exacted for doing business, the collection thereof should be taken out of the health department's hands and placed in the hands of that city department or agency whose primary function is the collection and handling of city revenue. Freedom from fee collection will relieve the health department employee from actual or implied obligation to the permit holder who has paid the fee and such inspections as are genuinely necessary to safeguard public health will be performed solely for the protection of the public health and not be compromised by the purpose of producing revenue under the guise of protecting public health. From an administrative public health viewpoint permits should be required for some businesses but, with possible limited exceptions public funds should bear the cost of such public health inspections.

DIVISION OF HOUSING AND SANITATION

This division is by far the largest of the sanitary service organizations within the city health department, the second largest in number of persons employed and its activities are used to produce the largest amount of revenue. Although its functions have been divided into two general classifications—housing and sanitation—the inspectors of the division engage in both activities. There are no specialists in either field, with the exception of the inspector assigned to the control of bottled water and bottled beverage plants, food poisoning investigations and swimming pool control.

The division is in charge of a director who has come up from the ranks of inspectors. The advancing grades within the division are

inspector, supervisor or supervising inspector, chief supervising inspector and director. A sanitary engineer is also assigned to the division. The following table summarizes the personnel employed during the fiscal year ended June 30, 1938.

Personnel Employed in Housing and Sanitation Division, 1937-1938

Director	1
Chief supervising inspector	1
Sanitary engineer	1
Supervisors	5
Inspectors	49
Clerk	1
Stenographers	4
Cashier	1
Mosquito exterminator	1
Total	63

At the close of the year this number was reduced to 59 through the loss of one supervisor and 3 inspectors. Since the fiscal year 1929-1930, the total number of employees has never exceeded 63 nor fallen below 59, the present figure; the maximum number of inspectors has been 49 and the minimum 46 and the number of supervisors has ranged from 6 in 1929-1930 to 4 at the present time.

Salaries

Ordinarily it is the general rule to give consideration to salaries and tenure of office after the consideration of the qualifications required for the proper performance of the work to be done, but in Los Angeles the qualifications prescribed for inspectors seem to reflect the salary inducements offered with the job and apparently are subordinate thereto; no current criticism is intended by these remarks; rather they are offered as an explanation of the present situation. Procedures established years ago, including the civil service standardization of salary scales for certain classifications of positions, have apparently not been revised and adapted to present-day conditions and increased educational and technical requirements. While the salary offered for entering into the field of public health as an inspector may be attractive enough for the temporary consideration of a qualified person in necessity, the inducements are not such that the position will be attractive as a career, unless personal interests or the assured tenure of office are strong enough to cause individuals to remain.

The entrance salary for inspectors is \$140 per month with automatic increases to \$150 at the end of one year's service and to \$160 at the end of two years. Supervisors draw the single rate of \$185 per month, with no provisions for increase in recognition of experience and productivity. The chief supervising inspector is paid \$200 and the director \$235 per month, in spite of the responsibility placed upon the holders of these two positions. The salary of the position of sanitary engineer is fixed at \$225 per month, which is less than any other professional employee of the city working in a similar capacity. There are no automatic salary increases for positions other than inspectors nor is there prospect of promotion except following death, resignation or retirement of other employees in superior positions. Tenure of office is

provided through the city civil service system but is subject to appropriation limitations. The total number of employees has varied little since 1929-1930 although meanwhile the city has increased some 9.5 square miles in area and population has increased nearly 50 per cent; in fact, the number employed at present is the lowest for this period.

Appointment and Tenure of Office

Original appointments are made in the grade of sanitary inspector. A statement of the required qualifications for the position and the number of vacancies to be filled are submitted periodically by the city health department to the civil service commission which may furnish a list of eligibles on file for appointment to the position or if no eligibles are available the commission may hold an examination for applicants which comprises a written test following an oral interview. These tests have frequently been limited to checking "true or false," a series of pertinent statements of which there may be 200 or more. Tenure of office after a six-month probationary period, is for life unless removed for proven cause. Promotions to higher grades are made after successfully passing a civil service promotional examination, which is open to all inspectors who have three or more years of service in the city health department. The division head, however, ordinarily is selected by the city health officer from personnel in the division and his tenure of that office is subject to the pleasure of the health officer.

Qualifications

The civil service commission is not bound by the qualifications specified by the city health department but usually gives them appropriate attention.

There has not been a recent examination held for sanitary inspectors for the housing and sanitation division and a copy of the official civil service requirements for entry is not available; apparently the requirements have been good physical condition, a high school education or the equivalent, some knowledge of the pertinent laws of the State of California and pertinent ordinances of the city of Los Angeles relating to housing and sanitation and some experience in sanitary control methods.

The qualifications that should be required for sanitary inspectors in the city health department are not materially different from those recommended for sanitary officer by the Conference of State and Territorial Health Officers, which are as follows:

"Sanitariums and Sanitary Officers

- I. Sanitariums having consultant and (or) special service responsibilities:
 1. The designation shall be "Sanitarian" with such prefix as the training in a particular branch of public health work would indicate.
 2. The educational requirements shall be a bachelor's degree from a recognized educational institution (of learning), following by at least one year's course, or its equivalent, in certain subjects necessary for one entering the public health field.

The educational requirements shall include as basic training common to all classes of sanitarians:

- (a) Education in biostatistics and general epidemiology, particularly in methods of collecting, recording, and interpreting information regarding diseases

toward the prevention and control of which the sanitarian is expected to contribute.

- (b) Sufficient instruction in public health administration to provide a general knowledge of the forms and methods of health department practice.

To such basic training there shall be added specialized training in one or more of the following classes of sanitation service:

- (a) General sanitation, including nuisances, water supply, sewage disposal, rural and recreational sanitation, mosquito control, and rat control; or
- (b) Sanitary control of milk and foods, including methods of protection against such diseases as may be transmitted by foods, and laboratory procedures; or
- (c) Control of environment, to include housing and plumbing with respect to health, heating, lighting, air conditioning and ventilation sufficient to give some knowledge of the subjects, and courses in industrial sanitation.

II. Sanitary officers serving on the staff of local health organizations where good supervision is available through medical or engineering officers:

- 1. The designation shall be "sanitary officer."
- 2. Educational requirements shall be not less than graduation from high school.
- 3. At least one year of experience in some line of work that has brought the individual in contact with the general public shall be required.
- 4. Not less than twelve weeks of special training in sanitation work through organized courses of instruction which meet recognized standards shall be required.
- 5. Individuals not having had organized instruction which meets recognized standards, or experience in health and sanitation work by means of which satisfactory ability has been demonstrated, shall not have exceeded 35 years of age at the time of first employment.

Health organizations employing personnel under the terms of the foregoing qualifications shall require any individual so employed to supplement his training as soon as practicable through education in public health work by courses equivalent to not less than a two-year college course.

Preference in initial employment of personnel shall be given to individuals having college training, especially in biological and engineering subjects."

For promotion, three years' experience in the city health department are required. The most recent official civil service statement of required qualifications for promotion and advanced duties follows:

Supervising Inspector, Code 5152 (n) Promotional, Bureau Housing and Sanitation, Health Department

General Qualifications

At least three years' experience as inspectors in the bureau of housing and sanitation, rodent, or quarantine divisions of the health department. In service training or extra studies in the field of public health laws, sanitary science, food sanitation, elementary bacteriology and chemistry as applied to food; public relations, report writing and some public speaking. Applicants should possess a thorough working knowledge of the functions of other divisions of the health department, together with a generalized knowledge of the means of transmission of the more important communicable diseases and the methods employed in their control. Also, a good knowledge of public health organization in general, and the functions of other departments of the city government, as well as related public health and welfare agencies of the county, state and federal governments.

Knowledge of laws, ordinances and regulations enforced by the bureau, together with the ability to interpret their meaning and practical application. Ability to analyze social and economic problems encountered in the field; ability to size up people and situations accurately, to adopt an effective course of action; be possessed of firmness, good judgment, integrity, good address, tact and good physical condition; ability to supervise the work of others; promote cooperative reciprocal assistance among other employees, agents and representatives of related public health and welfare agencies. Ability to make intelligent factual reports, together with recommendations.

Duties

Under supervision, to direct inspectors of the bureau, in the performance of inspectional duties and the enforcement of laws, ordinances and regulations affecting the sanitation, ventilation, maintenance, use and occupancy of hotels, apartment houses, house courts, dwellings, public camps and general living quarters.

Inspect and enforce laws and ordinances affecting the sanitation of food handling establishments of all kinds; barber shops and beauty parlors, laundries, industrial plants, and premises in general.

Enforce laws and regulations affecting community sanitation; sewage waste and rubbish disposal; sanitation of plumbing, and perform related duties in the field of sanitary science.

Outline the inspectors' work and check their reports. Assist inspectors in the field and make minor decisions in the application of laws and ordinances. Assist and direct the procurement and preparation of evidence for the prosecution of law violators. Make intelligent factual reports to the director of the bureau; carry on independent investigations and limited surveys.

Approved:

Board of Health Commissioners.

From an analysis of the foregoing announcement it is apparent that much more is stated to be required of the applicant than it is possible for him to attain with the limited education prescribed for entry in the grade of inspector and but three years of experience within the department. The apparent danger in Los Angeles is to freeze any promotions to the grade of supervising inspector as the qualifications currently prescribed might well serve to fill the positions of the director of the division or even other positions up to the city health officer's; either none of the inspectors may qualify or else the requirements are not as rigidly observed as would appear. Certainly the duties as outlined beneath the stated requirements do not indicate any necessity for such severe general qualifications. To avoid such situations as the freezing of promotions at certain levels by such ambiguous and all-inclusive qualification requirements, it is suggested that consideration be given to promotion on a merit basis, making eligibility for examination for promotion dependent upon years of service, demonstrated adaptability, character, personality, tact exercised in dealing with the public, and interest and productivity in the work involved; in addition, a written promotional examination based upon experience in the department, in-service training and required reading should be held to establish superior capability. The lack of education beyond high school should not be an insurmountable bar to promotion or elevation to a superior position where the inspector has taken such productivity, initiative, interest and in-service advanced training as to merit promotion. Moreover, in the best interests of the department and of the public, promising employees should be given the opportunity to take additional short courses of public health training outside of the department. Attendance at public health schools, public health and related conventions within and without the state is so very limited that the employees are deprived of outside contacts so useful to stimulate flagging interest and for the exchange of knowledge. At least, attendance at the institute of government given annually in Los Angeles for one week by the University of Southern California should be encouraged and employees should be further encouraged to present papers at this institute and elsewhere. Some of these papers already have appeared in local, state and national journals. Permission for attendance at

meetings, however, should be accompanied with the admonition that the benefits derived and materials collected belong equally to the entire health department, if the employee is sent as a representative of the department. Reports of any meeting attended should be made available to all employees. In-training is virtually absent in all divisions surveyed in this section of this report.

Present Personnel

The present director of the housing and sanitation division has had, as of January 1, 1939, 24 years of service with the department as sanitary inspector and at one time serving as executive assistant to the city health officer. His education and early training have been legal, possessing the degrees of LL.B. and LL.D., and his inclinations tend more toward the legal aspects of division matters; this education in and trend toward legal affairs have been of great value to the entire city health department, which does not have an official departmental legal adviser, to assist in the preparation of proposed ordinances, in the analysis and use of state laws and city ordinances and codes applicable to the department and in the necessary preparation for court cases. The same education and trend, however, have been at times some detriment to the work of the division in one respect in that the legal mind inclines to counsel caution and delay in procedure until all the facts are at hand. While this tendency may have kept the inspectors, the division and the department out of many difficulties, actual or potential, it has prevented speedy clearing up of recalcitrant cases because of some ambiguity in legal terminology in the municipal code and city ordinances. Regardless of such criticism that may be made of this division, it is felt that the present director has rendered valuable service to the department. The salary of this office, now \$235 per month, should be comparable with salaries paid to offices of similar responsibilities in other city departments rendering similar services.

The chief supervising inspector of the housing and sanitation division, in addition to his regular duties of supervising the housing and general sanitation work of the central and district offices, also performs during his absence the duties of the director in charge of the division, and has direct charge of the department's investigation of food-poisoning outbreaks. The chief supervising inspector is also qualified by long and very satisfactory service, for special investigations by the department in the fields of housing or food control. The present incumbent has had over 27 years of service in the department, serving in the ranks before promotion. At one time he served as director of the division and was dropped back to his present position at the same time that the present director was dropped back from the position he once held as executive assistant to the city health officer; both changes were due to the placement of a former employee returning to the city health department, in the position of executive assistant. While it is rare in survey to single out one individual for special commendation, it is felt that an exception should be made in the case of the chief supervising inspector who started from the bottom as an inspector; an intense interest in his work, close application to his job, and constant study have raised him to his present position where he is respected, within and without the department and also throughout the state and beyond, for his honesty, sincerity, judgment and knowledge.

During his years of service, sanitary practices have developed rapidly and he has kept apace of those developments; he has been selected and set forth herein as an excellent example to all inspectors and others of the possibility of adequate development within the public health field although handicapped by lack of formal training. His value to his department and his city is certainly not measured by the compensation he is paid for his services, accomplishments and loyalty.

The sanitary engineer while nominally attached to the division is not under the director but reports directly to the city health officer or to the executive assistant. For reasons which will appear elsewhere, the position of the sanitary engineer will not be discussed at this point although the position is carried in the housing and sanitation division.

There are five supervisors or supervising inspectors, three of whom are attached to the central office, one is in charge of the San Pedro health district office and one in charge of the Venice health district office. All of those employees have been promoted from the ranks after passing promotional examinations. The length of experience of these five men ranges from 12 to 21 years in the department. All have been selected because of their ability to supervise and direct the sanitary control program and the inspectors within their respective districts. All draw the same salary, \$185 per month. An opportunity was not afforded to go into the work of these supervisors in detail, except at San Pedro and at Venice; the work in these health districts will be discussed elsewhere in this report. One of the supervisors in the central office has demonstrated his interest in public health work by serving on the board of directors of the National Association of Sanitarians and as business manager of their monthly journal, "The Sanitarian." Each supervisor reports directly to the chief supervising inspector and is responsible for the work of the division in the district under his supervision.

Review of the individual inspectors is impracticable in this report. It was obviously impossible to interview all of them or make tour of inspection with each individual in the time available. The general value of the inspectors' work must be measured by the record. The length of service of the inspectors of the division of housing and sanitation ranged from 6 months to 23 years; usually the employee remains despite the fact that his maximum salary, \$160 per month, is attained after two years service. Retirement or death, with rare resignations or dismissals for cause, usually terminates his connection with the department. A very few of the inspectors, still carried at inspectors' pay, have specialized in particular fields with no reward other than their own interest and sense of attainment, but nevertheless with considerable credit to the city health department.

Personnel Records and Reports

The executive assistant to the health officer is also personnel officer but personnel records, such as they are, are kept by division heads. The housing and sanitation division has incomplete records of its personnel and these are as good as those of any other division in the department, but leave much to be desired of such records.

It could not be determined definitely whether or not efficiency records were kept or, if so, by whom. A report to the Civil Service

Commission is required for each new employee following six months probationary employment and it is presumed that some sort of recommendation is made when each inspector has served his one and two years service and becomes eligible for the two automatic increases in pay up to the maximum salary. For promotion, one of the top three candidates must be selected for a single vacancy and presumably some recommendation or report must be made at that time.

Other than the above, apparently no attempt is made to evaluate the services of employees or to keep any records other than age, date of entry on duty, leave record and salary. Complete information on employees including names of educational institutions and years of attendance is not available, unless it is in the files of the Civil Service Commission.

In-service Training

With the exception of one week during the year when the University of Southern California holds its annual institute of government, the inspectors have little opportunity to secure, and seem to have little interest concerning, in-service training. The principal reason is that any time spent on training, which benefits the health department as much or more than the individual, must come from the inspector's own hours and not from the hours of duty. There is a further barrier, even if the inspector were willing to spend his own time as some few have been, and that is that there is no financial advantage in such improvement of his services. He is paid as much for a lack of knowledge as he would be for any increase in his knowledge. The chances of promotion are slight and advances in pay, based on merit and years of service, do not exist. Further, many men are now required to put in overtime in order to complete their assigned duties and, as overtime must be compensated in kind and taken as leave, and as leave can not always be granted because of the pressure of work and lack of personnel, the inspectors can not be censured because of any lack of enthusiasm for a project which will require them to devote still more time to work which now rewards them in such a limited manner.

A very few employees belong to the American Public Health Association, a few more to the National Association of Sanitarians, while some others do outside reading concerning their work. A technical reference library is available within the department but its hours are those of the department. Inspectors are not encouraged to read during working hours, nor do they have the time to do so. There are no journal clubs or any department clubs where the men may discuss their work freely with each other.

Staff meetings attended by heads and principal employees of divisions meet every Monday morning allegedly to discuss interdivision affairs and departmental policies. However, this conference is rather barren of any material benefits as the heads usually receive instructions at these meetings and discussions are limited. Apparently the heads of the health department use these conferences to issue general instructions and division heads are either unwilling or are not encouraged to discuss interdivision problems or policies. The best constructive purposes which such staff meetings might serve appear to have never been considered. The health officer may be present at these meetings but the lay executive assistant usually presides.

The Good Cheer Club is a health department organization which meets on Saturday mornings monthly except July and August and a prepared program is presented by a different division at each meeting which concludes with a luncheon. Membership is reputed to be practically mandatory and dues are collected; a general feeling of enforced attendance seems to prevail.

Policies

The general policies of the city health department respecting housing and sanitation are carried out by this division of the department. When any specific division regarding the policy to be followed may be required, the question is submitted to and ruled upon by the city health officer. The usual route is through the executive assistant to the city health officer and most minor and even major decisions are made by the executive assistant without going further up. Correspondence is handled by the director of the division and signed by him. The original and one copy are sent to the health officer for his information and approval. If approved the copy is returned, stamped in the office of the city health officer with his name.

Cooperation With Other Agencies

The division of housing and sanitation, more so than any other division within the health department, cooperates with many city, state and federal agencies. It is obviously impossible in this survey to go into any detail of these cooperative activities without also going into some detail concerning the cooperating agencies. As it is not the purpose of this survey to evaluate the work of any agency other than the health department, the agencies and the extent of their cooperation only are listed. Unofficial agencies are not listed because a record of them is not kept and because such a list may well be interminable.

Office Space and Equipment

It would appear that enough space has been provided at the central office for the supervisors, inspectors and clerical staff. The director has a private office but it is too small for consultation of more than four persons. If a larger group appears, the conference must be moved to the board of health commissioners' room or elsewhere outside. The sanitary engineer, the chief supervising inspector and the two inspectors on special detail are all crowded into one small room that is entirely inadequate and impossible of use without seriously disturbing or interfering with the other occupants attempting to work or confer at the same time.

The office equipment is quite old but serviceable. Additional filing and drawer space for each employee is needed. Equipment should be gradually replaced with more modern, lighter furniture, until the offices are completely refurnished. It is apparent that the health department, of all city departments, should be provided with airy, light and adequate quarters in order to impress upon the public that the health department is practicing what it preaches to the public at large and enforces in some private businesses—adequate light, ventilation and space.

Employees engaged in special work should be provided with enclosed offices where visitors may be received with privacy and where specific duties may be pursued without interruption.

Records

All records including reports and correspondence are kept in files, either steel or wood, up to the capacity of the equipment at hand. Follow-up "tickler" files are used for current records, such as applications for food establishments or other businesses requiring permit applications. All applications are filed alphabetically by street address, in separate files for housing (blue forms), food establishments (pink forms), and miscellaneous (yellow forms). Permits are issued in triplicate, the original going to the applicant, one copy serving as a permanent file record which is kept in a separate file by month of issue and the third copy serves as a future notice and is filed in the tickler file, being dated a year ahead; on the first of the month before the renewal of a permit is due, the third copies are sent out as notices. When the new fees are collected, new record copies of permits then replace the old record copy which is destroyed. Delinquent permits are kept in a separate file and are eventually turned over to the inspectors for action which often takes as much as six months before the matter is cleared.

Administration

The central downtown part of the city of Los Angeles has been divided for inspection purposes by the city health department into three central subdistricts operating out of the central office while the balance of the city's outlying area is served from the health district offices located at Van Nuys, Tujunga (reports to Van Nuys office), Venice, West Los Angeles (reports to Venice office), Watts (reports to central office) and San Pedro; a supervisor has immediate supervision of the work of the division in each of the three central subdistricts and in each health district. Each supervisor's district is divided into inspection districts, each inspector being held responsible (with a few exceptions) for the work under the jurisdiction of this division in his inspection district. Each inspection district is, in turn, subdivided into ten sections, delimited on specially prepared maps and identified by the letters A to J, inclusive; each inspector is required to be in the same lettered section of his district the same day, regardless of emergency or exigency. On the five day week basis followed, it takes an inspector two weeks to cover his entire district. A master map in the office of the city health officer has a tab on the edge with a notation above indicating that every inspector is in section B, for instance, that day. The reason therefor is reported to be that thus the department knows where every inspector is every day and that the system tends toward more efficient service by the department. Such unbroken regularity also serves to post the objectives of these activities as to when inspection will be made.

The majority of complaints originating throughout the city are received at the complaint desk in the central office of the housing and sanitation division. Complaints of all sorts, including nuisances, are received; all complaints are noted and entered on a special form—only one original is made. Those having no relation to public health or not within the jurisdiction of the city health department, such as roosters crowing, cans dumped on vacant lots, and so on, are referred to the proper city department. Others are referred to each inspector's section file after passing through his supervisor's hands. The back

of this form is used by the inspector for his report including any notices served. If a notice is served, the form is again returned to the section file for recurrent follow-up attention, or to a special file for immediate follow-up. These complaints, together with permit applications or other pending assignments, are placed in chronological sequence in each inspector's section file, to be cared for when the inspector reaches that file on its designated day, which may be up to two weeks later. Emergency or other urgent complaints may be directly referred to the inspector for immediate or for special Saturday handling. Each inspector is required to telephone in twice daily, the calls being recorded on a call sheet provided for that purpose, and at that time he additionally receives any urgent complaints or new complaints originating in the section in which he is required to be on duty that day.

Two clerks in the central office are assigned to receive, record and place in the proper inspector's section file all complaints received by mail, telephone or by person. One clerk keeps a record of employees' time, does office routine on reports and records and handles routine correspondence. One cashier and a clerk handle the fees collected from permits issued by all inspection divisions of the city health department, keeps the records and does all the necessary clerical work in connection with the issuance of these permits. The chief clerk is responsible for all records and the handling and filing of all permits and applications as well as making reports and handling routine correspondence as time permits. Some federal NYA assistance for clerical and filing details has been temporarily available.

Procedure

Each inspector in the three central subdistricts reports to the central office at 8 o'clock every morning except Saturday and Sunday. From 8 to 8.30 he makes out his planned route sheets for that day and turns these in together with the report of his previous day's activities to his supervisor. The route sheets are made up from complaints, license applications, delinquent permits, notices, and so forth, within the particular subdistrict to be covered that day. At this time the inspector may discuss special problems with his supervisor or with other employees in the department. At the central office, a skeleton force works on Saturday morning with some inspectors assigned to desk detail. From Mondays through Fridays, excepting holidays, each inspector is in his assigned health district. Saturday morning is designated as clean-up day, at which time all odds and ends left over during the week are cleared. The working day is from 8 a.m. to 5 p.m. and on Saturday from 8 a.m. to 12 noon.

District Offices

The city of Los Angeles, comprising over 450 square miles in area and irregular and sprawling in shape, is larger than many counties and presents the administrative public health and sanitary problems of a county. Because of its area and shape it has been found advisable to establish centers of public health activity in sections more distant from the central office. These health district activities have

been also discussed elsewhere in this report and the discussion here will be confined to the set-up at these offices for the control of sanitation.

The chief supervising inspector of the division of housing and sanitation has general supervision over these offices, devoting one day each week to each district; this supervision actually is given only to the Venice and the Van Nuys offices, as the Watts office reports to the central office and both the department and the supervisor in charge of the San Pedro office feel that it can function ably without close central office supervision.

San Pedro Offices

The administrative offices of the San Pedro Health District are located in the former city hall of San Pedro. Branches of other city departments with which the health department works closely are located in the same building and facilitate the expediting of cooperative efforts. Transportation is by street car, automobile, or on foot.

This office functions essentially as an independent health organization with the central office serving as a repository for official records and determining general policies. There appears to be a tendency to let this office function in this manner and the principal criticism of the set-up is that too little supervision and control is furnished by the central office.

A housing and sanitation division supervisor is in charge of the entire San Pedro health district office, including all personnel, records, files, vital statistics, reports and so forth. The supervisor devotes much of his time to administration and more to public contacts, an important consideration in the harbor area where there are many special problems. He is also available for special detail and emergency assistance to any of his inspectors.

The supervisor has grown up in the field of sanitation and has been in this district for about 18 years. He knows the people and the problems of his district and has unusual ability to get along with the public in general and with the particular people and businesses with whom and with which he has official relations. It was not apparent that his long tenure of office in this area and close contact with the residents had impaired his efficiency or caused him to overlook the problems of the area. He is greatly underpaid, possibly more so than all of the other supervisors.

Under the immediate direction of the supervisor are three housing and sanitation inspectors, one mosquito exterminator, one meat inspector and two rodent control inspectors. The duties of the inspectors of the housing and sanitation division in this district office are similar to those attached to the central office, with the addition of fruit and vegetable inspection.

The meat inspector reports to the supervisor and to the chief of his division jointly and confines his work entirely to meat markets. A cannery and fish inspector employed by the division of meat inspection has been retired and the duties of this inspector have been assumed by those on general sanitation.

Two clerks are employed in the office, one of whom is bonded to receive fees for permits and for birth and death certificates and to

receive any other money due the health department and receivable at the San Pedro office. Funds are banked daily and a report thereof is forwarded to the central office. Records of all businesses, places under permit in this area, which includes the former cities of Wilmington and San Pedro, are kept in this office with copies forwarded to the central office.

Space for the supervisor and for the clerical staff appears to be adequate. There is, however, insufficient space for the inspection staff for their use during the short periods they may be in the office; one of their rooms is without outside lighting. Desks are too small and too little filing space for inspectors is provided.

Venice Office

The Venice district office is located in the former city hall of Venice. Branches of other city departments, with which the health department cooperates closely, have offices in the same building permitting quick disposition of joint problems.

The office is in charge of an acting supervisor of the division of housing and sanitation who directs all inspection personnel, keeps records for all branches of the health department working out of this office and handles vital statistics and records for the area served by the office. The present status of the supervisor is acting only and he receives the pay of an inspector although he has considerable administrative responsibilities; he is greatly underpaid. He is relatively new to this district but during his incumbency he has made material progress and has definitely contributed to the efficiency of the district work.

As in the San Pedro office, the Venice supervisor spends much of his time at the office on administrative duties. He has to act as clerk and registrar of vital statistics and also be ready for emergency calls or to assist any of his inspectors. Because he has no clerk, he has found it expedient to develop a method of record-keeping which involves a minimum amount of work with a maximum amount of information. A recapitulation of all reports going through this office is kept monthly and annually as well as semiannually so as to be available for either calendar or fiscal year reports. All records, including copies of permits, are kept in this office. Daily reports are forwarded to the central office with copies retained for the files. Permits are issued and fees collected as at San Pedro and Van Nuys.

Attached to this office are two housing and sanitation inspectors, one rodent control inspector who devotes half of his time to sanitation and one meat inspector who handles only the duties of his division. Fruit and vegetable inspection is handled by the sanitary officers. There is no clerk, which means that either the supervisor or one inspector must be on desk duty during office hours.

The sanitary inspector located at the West Los Angeles office reports to and through the Venice supervisor instead of to the central office. One of the sanitary inspectors attached to the Venice office also works in the West Los Angeles area as does the meat inspector, whose district, however, is greater than the combined area covered by the Venice and West Los Angeles offices. All inspectors travel by personally-owned automobile and are repaid by mileage, if available. The rodent control inspector travels in a city-owned car.

The area covered is rather large, extending approximately from El Segundo on the south to the city territory immediately north of Beverly Hills as far as Mulholland Drive and all the city territory to the west, south of that drive. This area includes that of the district known as West Los Angeles, formerly Sawtelle. A branch office is maintained in the city building at West Los Angeles.

Space in the Venice office for all personnel is entirely too small for efficient work. The supervisor has a small office, almost too small for conferences or consultation with the public, if necessary. A small room in back of this office is to be made available for two inspectors. At present these men, the rodent control inspector and the meat inspector, must use available desk and table space in the public waiting room. Desks are small with too little space for working and for current files. The impression received was that this district is a well-knit, smoothly functioning organization with every man doing his best despite the immense territory to be covered.

Van Nuys Office

The Van Nuys health district embraces more than 200 square miles, including the San Fernando Valley, North Hollywood and Tujunga areas. The district office is located in the Van Nuys branch of the city hall, convenient to branch offices of other city departments.

As at Venice, either the supervisor or one of the inspectors was on desk duty all the time, usually the supervisor, as but three sanitary inspectors are available for the field work of this entire area, doing all general sanitation, housing, miscellaneous and fruit and vegetable inspection work. In addition, there is one meat inspector, handling markets only, and a quarantine officer who handles all complaints regarding dog bites, rabies and the like.

The supervisor is an employee of the rodent control division, rated as supervisor but drawing but \$170 per month as against \$185 per month paid the supervisors in the housing and sanitation division. One inspector, carried on the payroll of the fruit and vegetable division, receives \$170 per month for doing the same work that the other two inspectors are paid \$160 per month. The meat inspector receives \$170 per month and has markets only to handle although he has a tremendous area to cover.

The supervisor is available for emergency calls and assistance to the other inspectors when the demands of the "desk," the records and other clerical work permit. With the addition of a clerk, his time may be better divided and used more on special detail than was possible in the past.

A similar arrangement regarding the keeping of records, collection of fees, vital statistic records and so on obtains in this office as in the other district offices. As at Venice, no clerk was available to take calls, handle routine and collect fees; however, a clerk was in training at the central office and reported to the district office for duty before the survey was completed.

The area covered by this district presents many problems more closely related to county health work than that of a metropolitan city. In the valley are both large and small ranches and there are also settle-

ments ranging in population from a few hundred to a few thousand. Sewerage is limited to the thickly settled areas, although the public water supply is available everywhere. Problems of sewage disposal occur more frequently here than in other parts of the city. Coupled with this problem is the impossibility of utilizing the Los Angeles River and its tributaries as natural drains because the area lies above one of the city's sources of water supply.

The travel of all of the inspectors is by personal car, paid by mileage in proportion to what may be available in the district's travel allotment. Reporting to and through this office, one inspector also maintains a sub-office in Tujunga. His territory, however, covers a considerable portion of the San Fernando Valley, north and east of Van Nuys.

The administrative office space allotted for the health department appears to be both adequate and pleasant. The usual small desks were evident. The clerical need was being filled at the close of the survey.

The office appears to be well directed and the inspectors assigned to the district are equal or better than the average in the department. One of the men, judging by his accomplishments is well above the average in initiative and results. The supervision exercised by the chief supervising inspector during his weekly conferences is well received at Van Nuys as it was at Venice.

Watts Office

It was not found practicable to visit the Watts district office during the survey. One inspector is assigned to this district and, according to reports, he handles about everything. He reports to the chief supervising inspector at the central office or may receive necessary supervision and counsel at the health district office in Watts. His work is similar to that of other inspectors in the division with the exception that his duties are broader in scope and he is given greater latitude in handling them. He has no assistants. The area is relatively small but the problems are peculiar to an area of low-cost housing and general lower standards of living. His record with the department is excellent. He has no control over other activities of the health department in this area. Briefly the Watts district may be considered similar to the West Los Angeles and Tujunga districts, handled as branches of Venice and Van Nuys offices respectively, except that he reports directly to the central office and exercises less independent authority than exercised by the larger district offices.

Housing Activities

The State Housing Act of California provides that all the provisions of the act pertaining to the maintenance, sanitation, ventilation, use and occupancy of apartment houses, hotels or dwellings, after erection, construction or alteration, shall be enforced by the "housing department" of incorporated cities and towns, or if there is no "housing department," by the city health department. In Los Angeles there is a municipal housing commission created by the city charter but its functions are limited to municipally-owned or operated properties; it has been inactive in recent years and has been practically replaced by

the housing authority of the city of Los Angeles, created under an enabling act passed by the state legislature, solely to meet the provisions of the federal slum-clearance Wagner-Steagall Act. The functions of the housing authority are limited to slum-clearance and low-cost housing. Recently a housing survey of substandard property was requested by the federal government and the housing and sanitation division of the city health department is securing this information, much of which is not of direct public health significance.

It would appear that notwithstanding the creation and existence of these two housing agencies, there still is no housing agency or department in the city government authorized and prepared to enforce the State Housing Act and that the city health department as in other cases has perforce become the city agency for the enforcement of state laws and regulations which may or may not have pertinent relation to the public health of the city.

Under the housing activities of the city health department may be included the inspection, largely for permits, of apartment houses, dwellings, hotels, house courts, labor camps, public camps, trailer camps and turkish baths. All of these, except dwellings and private living quarters, are required to have permits from the city health department; where no fee is charged, the premises are inspected only following complaint or on suspicion that the place should be subject to inspection and regulation, but all places for which fees are charged for permits are inspected thoroughly once a year with attention paid to the following items: entries and exits (safety), ventilation, plumbing (adequacy), cleanliness of building and furnishings, garbage and rubbish storage, lighting, overcrowding, improper arrangement of apartments, improper conversion of building not erected for apartment purposes. Obviously many of the details of such an inspection have little or no direct bearing on public health and normally should not be within the jurisdiction of the city health department.

The department of building and safety has by-passed responsibility placed upon it under section 91.06 of the municipal code for all buildings constructed prior to adoption November 13, 1913, of city building and safety ordinance No. 28,700 and under the circumstances, responsibility for these old buildings has been assumed by the city health department. The State Housing Act requires that every dwelling or building used for living or sleeping quarters shall have a sink and a water closet as a minimum. The ordinances of the city require connection to the sewer, or to a cesspool or septic tank where sewers are not available. The burden of determining compliance with state laws and city ordinances with respect to these plumbing installations has fallen on the city health department for all buildings constructed prior to 1936 as the plumbing division of the department of building and safety under section 94.77 of the municipal code is relieved of inspection of such construction prior to the adoption of the present code, effective November 12, 1936. The curious part of the relationship between the city health department and the building and safety department is that after the city health department has ordered alterations or installations required to comply with either state law or city ordinance or both, permits to make such changes must first be secured by

the owner or agent of the premises from the department of building and safety.

Plumbing inspection is a problem child of the division of housing and sanitation which is required to make inspections under the State Housing Act because of a lack of an adequate "housing department" in the city government. The retroactive portions of city ordinances relating to plumbing leave the burden on the city health department in lieu of the plumbing division of the department of building and safety. Inspection by the health department is done by regular sanitation inspectors but such inspection is largely limited to the presence and adequacy of required plumbing. A few inspectors may attempt to investigate cross-connection and back-siphonage problems but in general, technical work of this type should be undertaken by the sanitary engineer.

The board of public works is the custodian of all public buildings owned or operated by the city. Although sanitation inspections of public buildings come within its jurisdiction, the city health department is limited to only make specific recommendations. Public buildings are inspected by the division of housing and sanitation only upon complaint, which is taken up with the board, department or agency concerned. The city jails are inspected irregularly and recommendations are made to the police commission.

Boarding schools and day nurseries are under the general control of the nursing division, which also is responsible for the collection of permit fees from these institutions. Some few are classed as hotels which places them under the jurisdiction of the housing and sanitation division. Joint inspections usually are made by representatives of each division, the nurse confining herself to hygiene and the inspector to sanitation. Such inspections are made annually on permit application, or oftener if necessary.

Food Control Activities

All sanitation matters pertaining to food establishments and the control of food and food products in the interest of the public are administered by the general sanitation section of the housing and sanitation division excepting the specific food control duties exercised by the milk inspection division, meat inspection division and fruit and vegetable inspection division. Included among such food establishments are bakeries, box-lunch vendors, candy and confectionery factories, soda fountains, food products other than bakery or cannery, lunch stands, restaurants, cafes, beer parlors, grocery stores and so on, for which permits from the city health department are required.

Under general sanitation should be included the general survey of premises by inspectors in their district whenever time is available. It would appear from the amount of permit and other special work being done, that time is not available for a general comprehensive sanitary survey of the city.

Bakeries must be located in accordance with zoning ordinances and the building as well as the plumbing approved for such use. Physical examination of employees are required in that the employment

of any person suffering from a communicable disease is prohibited; the physical examination is made by the city health department for the nominal charge of \$1. Regular inspections are made at least once monthly. Inspection of bakery trucks and wagons is made whenever they may be encountered or during the month the permit must be renewed. Noteworthy is the present ultimate sanitation in commercial bakeries such as presented in those of the Helms Bakeries as an example. Every protection against rats or other pests and accidental contamination is given to the products of this plant. The owners, operators and employees are justly proud of this plant which stands as a good example of what can be done in sanitary control in this industry.

Candy or confectionery manufacturing establishments are inspected periodically but less frequently than such establishments as restaurants. Confectioneries or soda fountains receive the same attention as restaurants.

Food product establishments are those which manufacture or process foods other than baked, canned or bottled goods and include such products as mayonnaise, relishes, pickles, sauces, roasting of coffee, repacking of bulk foods, glazed fruits, popcorn, peanut butter, jams, jellies, et cetera. Food products in these establishments are neither sold over the counter nor consumed on the premises. Once yearly these plants receive a thorough permit inspection with an interim routine inspection being made as frequently as may be necessary.

Lunch stands are those places which sell prepared foods only as sandwiches, hot dogs, soft drinks, and so on. Tableware and china-ware are not used. Toilet facilities are not required on the premises but must be available nearby and permission for their use must be secured. These places receive frequent inspection. Perambulating or mobile lunch stands are similar in character and receive the same attention.

Restaurant inspections receive the greatest amount of attention from the division. Toilet facilities for the use of employees only and separate for each sex, are required but public toilet facilities are required only when liquor is served on the premises. Routine inspections are made once monthly and oftener as required. Sterilization of dishes, glassware and tableware is closely observed. Soda fountains with lunch stands are handled in the same manner as restaurants; box lunch or wholesale sandwich establishments receive similar attention.

Miscellaneous food product establishments such as grocery stores, delicatessens and markets (in outlying areas) receive routine but irregular attention. In general, it is contemplated that all food establishments be given at least casual inspection whenever the inspector is in the vicinity and has time available; in practice many of these places never get an inspection except when their permits are due for renewal, largely because of press of routine inspections, application renewals and investigation of complaints which occupy the entire time of the available inspectors.

The city health department has issued and has available for distribution pamphlets and circulars on food establishment requirements and proper sterilization methods.

Bottled Beverages

The division of housing and sanitation has assigned one inspector to a special detail covering the bottling of water and beverages, the handling and sterilization of second-hand bottles and other special work in connection with sanitation of food and drink establishments. This special detail has developed largely through the interest this particular employee has taken in this type of work; rated only as an inspector and earning the maximum pay of that classification, \$160 per month, this employee has developed his particular field solely through his interest in the work and not through any hope of financial reward or promotion.

The city of Los Angeles consumes a great quantity of bottled drinking water, either in 5 gallon demijohns or small bottles for table use. It was estimated that nearly 3,500,000 bottles of 5 gallon capacity or 17,500,000 gallons of drinking water are sold annually; this represents a daily consumption of nearly 50,000 gallons. The largest of the bottled water plants puts on the market an estimated 7,500,000 gallons annually. This particular plant also represents a maximum in cleanliness and sanitary control, including some limited laboratory control.

There was a total of 107 bottled beverage plants in the city during the calendar year 1938, all under the surveillance of the one inspector. These included, in addition to water, soft drink plants, wineries, breweries and vegetable and fruit juice bottling plants.

The bottled beverage plants receive frequent inspections, as often as the one inspector assigned to this detail can make the rounds. As nearly all plants have their own facilities for washing used bottles, they must also have permits from the Bureau of Food and Drug Inspection of the State Department of Public Health and must comply with the state standards for the handling and sterilization of used containers. The city inspector once monthly, or as frequently as he deems necessary, makes field tests at plants for causticity of washing solutions, chlorine residuals, and so on. He occasionally also checks the washing equipment, washing and packing of bottles. There are also in the city a number of "bottle laundries" engaged in the reclamation of bottles of all sorts. These establishments must also meet state requirements regarding the handling and sterilization of used containers and are inspected and checked by the city health department. A field kit and the methods used in making field tests have largely been developed by the city inspector for speed and convenience.

The raw vegetable juice plants offer a problem which promised to become serious until some sanitary control was secured. The usual procedure was to wash the vegetables, grind or pulp them and then squeeze out the juices. Unfortunately the processes were not carefully watched and a laboratory examination of juice samples revealed bacterial counts well up in the millions and *B. coli* counts out of all reason. The juices themselves formed enrichment media and when low temperatures of the product was not maintained, the bacterial counts increased enormously. While the number of these vegetable juice plants is small at present, the demand for the product is increasing but vegetable-juice plant sanitation is now a problem which has been attacked by the city health department in Los Angeles with the result that considerable information has been and is being collected.

Food Poisoning Investigations

Food poisoning investigations had been carried on by the city health department in a sporadic manner for a number of years. However, the findings were usually buried in the annual reports in such manner that the entire picture was never complete. In the fiscal year 1933-34 the data pertaining to these investigations first were collected together in a report of the division of housing and sanitation. Investigative work in connection with these cases is handled entirely by this division with assistance in the examination of samples from the division of laboratories. The work is under the direct supervision of the chief supervising inspector and is handled directly by one inspector who is one of the few adequately trained men in the division but who is paid no greater salary in recognition of his knowledge and ability. Two other inspectors, with some considerable training in this field, are available for additional or emergency duty.

Complaints of food poisoning originate from the entire gamut of gastro-intestinal disturbances. Apparently there are few genuine cases of actual food poisoning due to either bacterial or chemical sources. Nearly half the outbreaks are reported by the Georgia Street Receiving Hospital where apparently a snap diagnosis is made and a report sent to the city health department. As most of these cases occur after the evening dinner hour, the inspector detailed to this work must be on duty at that time. A large percentage of the cases apparently are due to dietary indiscretions, indigestion or unknown causes definitely not food poisoning. In the comparatively few cases of actual food poisoning due to bacterial action, principally staphylococcus and some *B. enteriditis* are found.

Cases entering the Georgia Street Receiving Hospital are questioned, but not very closely, by staff doctors and nurses but no epidemiological record is made. If food poisoning appears to be a possibility the city health department is notified and the investigation is made by lay inspectors. There is no routine medical follow-up in or by the city health department. Cases are referred back to private physicians by the lay inspectors whenever possible, but where the case has no private physician medical follow-up ceases at that point. In group outbreaks of gastro-intestinal disorder or enteritis the lay inspectors have attempted, with reasonable success, to trace contacts back through the families.

It is regrettable that a complete study of the food-poisoning investigations on record has not been made by the city health department as much information of value to the public and to the public health profession has been collected which should be made available. Under the present conditions of a shortage of clerical and inspection personnel it can not be expected that the division of housing and sanitation will be able to harvest the fruits of its experience. Appended is an analysis of the cases investigated during the period January 1, 1935, to January 15, 1936. Samples are collected, whenever possible, and sent to the laboratory for examination. The laboratory reports form a part of the record of the cases.

Cases Reported as Food Poisoning to Bureau of Housing and Sanitation Showing Source of the Report With Probable Causes, Types, Reasons, Responsibilities, Foods, etc. Data from Definite Known Fact Where Available and from Opinion Where Necessary to Complete Report

	January, 1935	February, 1935	March, 1935	April, 1935	May, 1935	June, 1935	July, 1935	August, 1935	September, 1935	October, 1935	November, 1935	December, 1935	January 1-15, 1936	Totals
Total outbreaks reported	3	7	10	8	5	4	11	32	30	28	42	29	20	229
Outbreaks reported by receiving hospital	1	2	2	4			5	26	14	12	23	12	6	107
Outbreaks reported—other sources	2	5	8	4	5	4	6	6	16	16	19	17	14	122
Persons affected, all causes	6	53	26	25	12	11	35	50	92	79	78	125	58	650
Cases proven by laboratory		37				4	21	8	3	15	4	3	4	99
Cases diagnosed as food poisoning by physicians		6	7	14	2	7	4	25	13	20	20	47	8	173
Cases probably food poisoning but not diagnosed or proven by laboratory	5	6	9	10	8		5	12	23	31	14	17	8	148
Cases traced to peptic ulcer											2			2
Cases probably dietary indiscretion									1					2
Cases probably not food poisoning	1	3	2	2			2	6	43	13	18	47	34	171
Cases probably due to an idiosyncrasy or allergy								1			1	2		4
Botulism		1								2				3
Staphylococcus	1	47	8	15	2	1	21	18			4	3	4	124
Streptococcus						4		2						6
Enteritidis and allied group								1			1			2
Trichinosis									2					2
Chemical both organic and inorganic, including mushrooms										1	10	1		12
Others and types not known	4	2	5		5		4	9	1	7	11			48
Due to improper handling of food in restaurant (excluding bakery products)	1	1	2	15	2	1	6	9	9	11	7	12	1	77
Due to improper handling of food by factory, wholesaler or retailer		2	4				1	11	19		18	3	2	60
Due to cream or custard bakery products, pies, etc.	1	36	7	1	2		21	10		1		6	4	89
Due to improper handling by ultimate consumer—no refrigeration—under cooking and long storage	4	11	6	4	8	5	1	13	15	24	19	4	13	127
Dairy products other than bakery products, including puddings		1		1		4		5	1	1	4	43	4	64
Improper home canning		1								2				3
Accidental chemical contamination									1	6	1			8
Suspected as being intentional chemical poisoning										b4				4
Group cases having similar symptoms but not traceable to any food common to affected persons, nor carriers*									24		4	54	29	111

* 14 cases showed very heavy infection with *B. Coli* and *B. Proteus* considered as a possible food poisoning organism but not definitely so proven.

^{b4} 4 cases suspected as intentional adulteration at restaurant having labor trouble—symptoms were of emetine. Several other people reported by the management as affected but names not known. No proof to confirm suspicions.

* These cases seem to be an annual occurrence. No common food or drink or carrier located. Symptoms are vomiting and diarrhea occurring simultaneously—mild fever—cramps, weakness, onset varying times after previous meal. Stools negative.

Miscellaneous Activities

Miscellaneous inspections are required to be made by the city health department of a number of business establishments for the purpose of enacting and collecting permit fees required under the municipal code. Here again the permit fee is essentially a special tax primarily conceived and collected for revenue purposes rather than to safeguard the public health. If the inspection of these establishments is for the protection and benefit of the public health and not primarily for revenue, public funds should be utilized for the service, but if their primary purpose is the production of revenue without benefit to the business or to public health, then they should not be performed by the city health department.

Barber shops and cosmetological establishments are given a thorough inspection once yearly when renewal of permits is due, and

are also routinely inspected less frequently as may be necessary, usually about once monthly. The personnel in these shops are licensed by the State Board of Barber Examiners and Cosmetology and the shops also must comply with standards for personnel and regulations for the conduct of such establishments promulgated by the State Department of Public Health and enforced by these agencies. In addition, the shops must comply with the provisions of the municipal code relative to zoning, hygiene and sanitation and disposition of refuse.

Laundries in general receive a thorough inspection yearly and other routine inspections as often as may be considered necessary. Those laundries specializing in the laundering of baby clothes receive more frequent inspections. Linen and towel supply houses, not a part of a general laundry, require by ordinance special permits from the city health department and receive similar attention. Laundry from communicable disease hospitals or from communicable disease wards of general hospitals is not permitted to be sent to a public laundry within the city. The state code is now being amended to prohibit also the sending of such laundry to laundries outside the city and will require such hospitals to provide their own laundry facilities. Wiping rag laundries, including buildings and equipment, must be entirely separated from any other laundry; the laundry processes prescribed are more severe than for personal clothing and effects.

Mattress and pillow renovators were formerly controlled entirely by city ordinance. A state law, enforced by the State Bureau of Furniture and Bedding Inspection, is now effective but this law is largely confined to the quality of the products and to commercial rather than sanitary standards. City ordinances control the sterilization of second-hand materials and require the attachment of tags indicating compliance with such sterilization requirements; stores handling used goods are inspected at irregular intervals for the purpose of determining whether or not mattresses and pillows are properly tagged. The renovating plants are inspected at least once yearly and more often as may be considered necessary.

Fertilizer plants are inspected for dust control in manufacture, the control of flies and odors, observance of zoning ordinances and provision for proper storage. As frequent complaints concerning these places are received and followed up, inspections are made very often. The number of plants has gradually decreased until the remainder now mostly have modern equipment for the reduction of bones and offal and for the mixing of manures with other ingredients such as guano, dried blood, fish, other manures, and so on.

Stables are infrequently inspected by the city health department, usually as a follow-up of a complaint; livery and feed stables must secure permits from the police department, but prior inspection of premises for proper sanitation must be made by the city health department. Hay markets, cattle sales stables and stockyards also must secure permits from the police department but prior inspection by the city health department is not required.

Massage parlors and baths having no specific identification only require police department permits and are not subject to any health department inspections or regulations. It has been mentioned that turkish baths came under the jurisdiction of the health department; this classification administratively includes all public baths.

Medicine, drug or chemical sample distributors must secure permits from the city health department. The materials permitted to be distributed are limited to approved articles; the approval of either state or federal food and drug inspection agencies is acceptable. The distribution of food samples is not permitted under city ordinance and no samples may be handed to any person under 16 years of age.

Industrial hygiene is not an activity in which the department has been engaged despite the fact that Los Angeles is the fifth ranking industrial city in the country. On occasions the housing and sanitation division has attempted to evaluate hazards arising from dust or gases when a complaint has been presented. It was stated that investigations were also made when other health hazards were suspected, but it is the unsuspected hazards which may be the most serious. The city health department is now starting the organization of a badly needed new division of industrial hygiene, although present city ordinances do not cover either industrial sanitation or safety; safety in industry is controlled by regulations of the Industrial Accident Commission of the State Department of Industrial Relations.

Certain minor problems more or less related to public health and revealed during the survey were being given little or no attention by the division of housing and sanitation. Air conditioning received no attention as no laws or ordinances have been promulgated for its control. Airports are controlled by the independent board of municipal airport commissioners, but the city health department cooperates in the control of food concessions at these airports. Second-hand barrels, when used for food purposes, are sterilized as are bottles. Re-use of can containers have presented no problems. Cesspool services, of which there are many, receive permits from the city engineer for the transportation and disposal of contents into certain designated manholes entering the city sanitary sewer system. Chemical closets are not permitted within the city except upon special authorization of the city health department. Used garments are required to be dry cleaned, or laundered and pressed before being offered for sale which is considered sufficient control. Certain agencies handling used articles, such as the Goodwill Industries, cooperate closely with the city health department. Crematoriums are zoned and must comply with the city health department standards. There are no garbage collection agencies other than the city or authorized contractors. Hair goods are not supervised in any manner. Ice plants must meet the requirements of state laws and city ordinances; permits are not required but some bacterial control is exercised through sample collection and laboratory examination by the city health department.

Mosquito control is a minor activity of the division. One inspector, classed as a mosquito exterminator and based in the San Pedro district office, does all the major inspection and oiling for control. The areas to be covered are principally in the vicinity of Los Angeles harbor, and between it and the Venice section. The problem appears to be entirely limited to pest mosquitos. A survey of Arroyo Seco, made about 15 years ago, revealed no breeding of anopheles. The filling of marshes, principally in the harbor area around San Pedro and Wilmington, has reduced the need for control so that one man can handle it. Elsewhere complaints are followed up and breeding is usually found confined to fish pools, bird baths, flower-holders in

cemeteries and such minor places. Close cooperation is maintained with the office of the city engineer which fills or drains low areas, cleans and maintains ditches, flushes catch basins and performs oiling operations on these works.

Public conveyances are under the control of the board of public utilities and the city health department has no authority to either inspect or make recommendations regarding them.

One inspector in this division is detailed solely to the control of swimming pools and private water supplies within the city. As this inspector appears to be largely under the direction of the sanitary engineer, his duties in this connection will be discussed under the following discussion of the office of the sanitary engineer. In addition, this inspector's knowledge of real estate and legal procedures relating to it are utilized by the city health department in tracing ownerships of property whenever it may be necessary to issue a notice or even file a lien against the legal owner of a piece of property.

Hog Ranches

At the present time there is only one hog ranch within the city limits and therefore subject to inspection and permit of the city health department. The major part of the city's garbage goes to the Fontana Farms located outside the city and this phase of municipal sanitation will be discussed in that section on "Refuse Collection and Disposal."

There are a number of hog ranches in Los Angeles County and in the adjacent counties, some of which receive a portion of the city garbage. Only one of these is mentioned here as all of them are outside of the jurisdiction of the city health department or other city agency. The Olive View Sanitarium is a county institution serving the city as well as the county for the care of tuberculosis, which is located partly within and mainly without city territory. The sanitarium maintains its own hog ranch in the hills back of the institution and the hogs are fed with garbage from the institution. This situation alone should be investigated, particularly the undesirability of feeding garbage to hogs from an institution for the prevention, cure or control of tuberculosis whether or not the public health may be directly affected. Another point for investigation is the location of the hog ranch in areas which have harbored and may harbor rodents, particularly ground squirrels and rats, both of which can be infected with and carry plague. These rodents are generally associated with hog ranches receiving garbage as these places provide good harborage and plentiful food supply; the location of any hog ranch in areas which are or may be infested with ground squirrels and rats is questionable. No formal inspection of the Olive View hog ranch was made and no criticism is therefore directed against it other than may be directed against all hog ranches utilizing garbage for hog feed.

The one hog ranch within the city limits should be required to meet more completely adequate standards of sanitation, if permitted to continue in business. This ranch comprises about five acres, supporting 2,000 to 2,500 hogs and is located just off La Tijera Boulevard, a mile and a half west of Inglewood; there are no dwellings or places of business nearer than this. Six tons of garbage is secured twice

weekly, on Wednesday and Saturday, from the city of Los Angeles, delivered to the farm by the city; in addition garbage is hauled in twice daily by the rancher from the U. S. Soldiers' Home at West Los Angeles. Garbage from Hawthorne and Manhattan districts is received two or three times weekly, hauled in by the collection contractors. Market refuse from the county grocery stores and markets is received daily from contract collectors. About 200 gallons of skim milk is also received daily. Barley is fed at the rate of about 400 tons to 2,000 hogs per year.

The garbage and refuse is brought in by truck and emptied on the feeding platforms in the pens and yards. These platforms are concrete but did not present an appearance of being kept properly cleaned. The alleyways between pens were littered and much of the litter was not recent. A row of eucalyptus trees to the west and immediately back of one row of pens had the underbrush under the tree trunks filled with nondescript litter. The yards away from the pens were likewise unkept and flies were thick. Unused garbage and the manure is hauled to a flat area immediately north of the pens and spread to dry preparatory to hauling away for use as fertilizer; beneath the drying detritus, fly maggots were swarming. The entire place presented an appearance of profound dilapidation and utter discouragement, and yet it was reported that this ranch had previously been kept in an acceptable manner and presented a cleanly appearance before the permit expired. Rats and other rodents were reported present although the operator stated none had been seen for some time. Their absence, if actual, is probably due more to vigilance of the rodent control division of the health department than to any control by the ranchers.

Sanitary Engineer

In making a survey and evaluation of the services of this office, it was necessary to secure information directly from the incumbent sanitary engineer and indirectly from his associates, as no record of his activities has appeared in any health department report since 1930-31 when there existed a definite sanitary engineering division. It was stated that a separate report was not now desired from the sanitary engineer. Whether desired or not by the health officer or his subordinates, the city health department is paying for certain technical knowledge and services of which there is no record, in the absence of which the city is not informed in regard to such services. Further, when the department is appraised, by itself or outside agencies, on the basis of its annual record of accomplishment as evidenced by annual reports or other data, the department itself is penalized by a failure to include a complete record of all of its activities and accomplishments. If, in this case, personalities are involved, it should be the duty of the city health officer to straighten out such difficulties, which can only reflect on his administration.

An organization chart prepared in the city health department March 1, 1939, shows the only sanitary or public health engineer employed by the health department, as attached to the division of sanitation and housing; while it would appear from this chart that the position of sanitary engineer was subordinate to the director of

the division of housing and sanitation and the executive assistant, by mutual consent the sanitary engineer in practice reports directly to the city health officer. However, what field assistance he may require must be obtained from the director of the division of housing and sanitation to which he is loosely attached.

The present incumbent is a graduate of the University of California with a degree of B.S. He is a registered civil engineer in the State of California and a member of the American Society of Sanitary Engineers. He is 58 years of age. His experience has been varied but has been principally in the public health engineering field with the Los Angeles City Health Department. The salary paid this position is extremely low and reflects not only on the incumbent but also on the department itself as the sanitary engineer is the city health department's representative at conferences pertaining to technical engineering problems. He must be able to present adequately and to protect the interests of the health department in meeting with men of similar education and professional training and he is at a disadvantage because of the common knowledge that he is the lowest paid man in the group. A low salary also leads inevitably to dissatisfaction and ultimate inefficiency.

According to a resume of the activities of the sanitary engineer as furnished by the lay executive assistant to the city health officer, the sanitary engineer engages in the following activities:

The water supplies of the city of Los Angeles, whether public, semipublic or private, receive the attention of the sanitary engineer. Monthly inspections are made of the public water supply reservoirs and reservoir watersheds. The sanitation of any and all supplies is observed at time of inspection and the findings are reported, with or without recommendations, to the proper officials. Semipublic water supplies are supervised monthly with respect to their treatment, principally chlorination. Private supplies are inspected twice yearly. Complaints are received daily, usually by telephone or mail and referred, if regarding public supply, to the bureau of waterworks and supply of the department of water and power; if the complaint is in regard to semipublic supply, it is referred to the proper official for attention, and to the owner if a private supply. No investigations are made unless the complaint affords grounds for serious suspicions. Sampling of all supplies is done by the inspector of the housing and sanitation division detailed to this special duty but reports with comments or recommendations are made by the sanitary engineer to the city health officer.

The city health department is frequently called upon to foster sewer extensions, either because the citizens in certain areas wish them, or because existing excreta disposal methods are unsatisfactory or detrimental to the public health. The sanitary engineer is given this job of promoting new extensions. The provision of new sewers properly comes under the jurisdiction of the city engineer and the procedure for securing them is well defined; applications are taken in order, subject to available funds, unless the emergency is great enough to demand precedence.

Matters regarding municipal sewage disposal coming to the attention of the city health department are not numerous nor of considerable

magnitude; these also are referred to the city engineer. Theoretically the sanitary engineer of the city health department acts in an advisory capacity on questions of sewage disposal, but actually the city engineer's office handles them as they deem best. Research on sewage problems is not carried on as it requires funds, personnel, material and space all of which at present are luxuries which the city health department can not afford.

Beach pollution following sewage disposal at sea is not serious except in the vicinity of the Hyperion outfall (city of Los Angeles). Bathing is prohibited near the outfall but nevertheless is engaged in by some people who appear to prefer the sewage-warmed waters. Drainage problems are confined to surface and storm water and do not entail any especial demands on the time of the sanitary engineer.

Swimming pool sanitation is a joint undertaking engaged in by the sanitary engineer and the division of housing and sanitation. An inspector, detailed to this work by the division, collects samples and makes limited inspections of the pools and equipment and also makes field tests for residual chlorine. The sanitary engineer is available for more detailed technical investigations if necessary. Swimming pools have been maintained at a high standard in Los Angeles for a number of years, partly due to planning, partly to pride on the part of the controlling agencies and partly due to vigilance on the part of the city health department. It was unfortunate that at the close of the survey, a poliomylitis scare resulted in a semiofficial warning by the city health department on the use of public pools. Eye, ear, nose and throat complaints are common from any pool which permits customers, especially boys and girls, to stay in pools as long as they wish, until the mucous protection is all washed away and the delicate membranes are inflamed, and particularly subject to infection. Some means of reducing the hours spent particularly by children and adolescents in the pools must be developed before pools will be relieved of the suspicion of being the source of respiratory or other infections. There is, too, in pools, more danger of skin infections, but this is really controlled by physical inspection and exclusion.

Sampling of pools is done by the same inspector but the reports thereon are signed and comments are made by the sanitary engineer who thus exercises some control over swimming-pool sanitation. Further supervision is secured by requiring plans of pools to be submitted to the city health department and reviewed by the sanitary engineer prior to construction. A limited control of bathing beaches and natural pools is secured, largely through the inspection service and repeated sampling. This naturally raises the question of how much sampling is necessary to secure adequate beach and pool control. It would appear that routine collection of samples from places which have a satisfactory history and record may well be omitted as part of each inspection and only occasional samples taken. This will also relieve some of the burden upon the laboratory.

Participation in the problems of plumbing and cross-connections is a relatively new activity on the part of the sanitary engineer taken up since his return to the department a few years ago. His relation to plumbing is not the same as that of the division of housing and sanitation, which is primarily interested in seeing that the plumbing require-

ments of the State Housing Act are carried out. His interest is in type of fixtures, the prevention of back-siphonage and the elimination of cross-connections with the public water supplies. The bureau of water works and supply of the department of water and power, and the plumbing division of the department of building and safety, are equally interested and possibly more directly responsible in these problems under city ordinances and they have been a lot more energetic in tackling them. The city health department has rather been awaiting developments, meanwhile insisting upon the other departments concerned coming to it for advice, assistance and consultation and complaining that their failure to do so constitutes encroachment upon its prerogatives.

The plumbing division of the department of building and safety has established a testing laboratory in the basement of the city hall where any plumbing device may be tested against back-siphonage. The bureau of water works and supply of the department of water and power has utilized the services of this laboratory for testing devices or fixtures which they may suspect of constituting a cross-connection to the public water supply or of permitting back-siphonage of sewage or waste waters into the supply. The water department has also used sections of the municipal code authorizing the city health department to enter on private property for the purpose of inspecting plumbing fixtures and equipment to determine whether or not waste waters are entering therefrom into the public water distribution system. Changes in the municipal code to strengthen sections pertaining to the protection of the public water supply have been suggested by the water department and have been submitted to the departments of building and safety and the city health department for comment and endorsement, but the proposed ordinance has been held up by the city health department on the grounds that the health code was being revised and that the suggested changes would be considered in its revision; however, this survey did not disclose any health code revision in process. It would appear that the sanitary engineer has used his influence against suggested improvements in methods of other departments when, because of limitations in personnel and available funds, it is impossible for the city health department to undertake such work itself. In this survey it is not proposed to enter into any local arguments over the rights and prerogatives of any city department; however, it would seem that if any other department is willing to engage in any project in line with its activities which will remotely protect the public health, the city health department should be willing to accept such assistance in protecting the public health in the spirit in which it is offered, particularly in view of the already existing provisions of city ordinances vesting some of such border-line public health activities in the other departments.

The entire field of back-siphonage offers much toward potential protection of public health, but it also offers a very fertile field for promotion in the name of public health; there are so many "ifs" to be met before any real dangers occur. The real dangers, which are relatively few, should be differentiated by the responsible city agency from the many theoretical potential dangers which practically never occur. The sanitary engineer of the city health department should be and is avail-

able for limited surveys and consultation on back-siphonage and cross-connection problems. The surveys are limited to those he can accomplish himself as he has no assistance, and consultation should be made available particularly to plumbers and others who are interested in those problems. He has been responsible for some educational work in this field and has given occasional lectures on the subject. The city health department has not engaged in any research in this field as the facilities are not available.

Industrial hygiene is a relatively new activity in the health department. At the time of this survey, the services of the sanitary engineer in this activity were limited to a few safety surveys and occasional (on call) smoke, ventilation and dust problems. Industrial sanitation is an activity of the division of housing and sanitation. A new comprehensive division of industrial hygiene is about to be established within the department which will absorb the work now being done by the sanitary engineer and the sanitary inspectors.

Although listed as one of the activities of the sanitary engineer, the control of mosquitoes in the city of Los Angeles is not a major problem and is handled largely by the inspectors of the division of housing and sanitation; the major part of the control program is carried out in the harbor area, by an inspector attached to the San Pedro district office. Control measures are entirely for pest mosquitoes and the sanitary engineer is available for consultation on control problems.

Such time as the sanitary engineer devotes to refuse collection and disposal follows complaints made to the city health department which apparently are not or can not be referred to the city engineer. No research in this field is carried on for reasons mentioned heretofore; since city ordinance or charter vest the responsibility for carrying these functions in other city departments, it is questioned whether research therein should be engaged in by the city health department.

The sanitary engineer can and does make himself very useful to the city health department because of special training, experience and knowledge in his field. Lectures, particularly on plumbing problems and hazards, are given where requested. Attendance at various meetings as the representative or adviser of the city health officer is frequent as is consultation with other city department representatives and outside agencies on common problems. It was noted that, with a single exception, the engineer was well received in other city departments.

The lack of reports of the sanitary engineer for the past few years makes unavailable any record of the special problems which crop up in any health department. It is known, however, that the emergency caused by the flood of March, 1938, created a number of special problems in which the sanitary engineer was active. Usually the sanitary engineer consults with the health officer alone on these problems. Advice on these special problems and on miscellaneous complaints is given other officials upon request, but usually after occurrence.

It seemed that during the period of the survey at least, the services of the sanitary engineer were not being used to the best advantage by the department. It would appear as though he had been set off as a consultant and used as such, with little or no direct responsibility and no assistance provided to carry out even a simple program of sustained activity. His office was shared with three other employees, one being

the chief supervising inspector of the division of housing and sanitation. This employee and the engineer each should have separate offices where the public generally, and public officials specifically, may have access to them without the distraction of other employees.

The principal activities with which the sanitary engineer appeared to be concerned were general supervision of swimming pools, protection of private and semipublic water supplies, an altogether too ambitious program, considering lack of assistance, of cross-connection and back-siphonage elimination in schools and hospitals within the city and a curious crusade against the department of water and power. There does not appear to be any well-defined program of activity or plan of projected activity. This may be due to the uncertainty of obtaining assistance, badly needed at the present time for the plumbing surveys now preempting his attention; as 76 hospitals and 90 schools and colleges were requested by the city health officer to furnish information regarding their plumbing installations, it is incumbent on the health officer to have the sanitary engineer make necessary follow-up surveys and recommendations for the elimination of any existing hazards. The Los Angeles city public schools have promised their cooperation in this problem and have made a provision in the budget for any needed improvements.

Transportation of the engineer for official duty is by personal car repaid on a mileage basis. Theoretically the city pays employees 6 cents for the first 200 miles, 5 cents for the next 400 miles and 4 cents for every mile thereafter for personal cars used on official business. All employees driving personal cars submit mileage accounts monthly. The total amount of money available for paying mileage is divided by the total number of miles of all employees, with the result that the mileage rate is usually considerably less than that officially allowed. This is due to an insufficient provision in the budget for mileage; the tremendous area of the city requires provision for travel on official business far beyond that of any other health department. The engineer has suffered, as have others, from insufficient return for the use of his automobile. However, in common with other employees, he turns to more economical means of transportation such as street cars and electric railways, but these are time-consuming and wasteful in view of the cost of the employees' time to the city and the need for additional employees to handle the work.

DIVISION OF MEAT INSPECTION

The division of meat inspection is a relatively new separate division in the city health department which was created in 1937 by splitting up the former division of meat and milk inspection at that time directed by the present director of the meat inspection division. A rather curious series of administrative acts ended with the milk sanitation work being taken away on December 19, 1937, from the director of the old meat and milk inspection division; it appears that he was bearing down too strenuously on the relatively few but apparently important recalitrants.

The growth of the meat inspection division has, of itself, been both curious and interesting. Prior to 1932 its chief duty was the inspection of carcasses at abattoirs and slaughterhouses. However, state laws

were enacted whereby meat inspection became entirely a federal and/or state function as of April 1, 1932, and the meat inspection division of the city health department thereupon had a number of lay meat inspectors for whom it had no further need, but the activities of the division have been built up again by city ordinance and otherwise to a point where today its inspection and permit activities are greater than they were before slaughterhouses were removed from its jurisdiction. Of course, the phenomenal growth of the city during this interval undoubtedly contributed to the need for increased activities.

Meat inspection functions in the city of Los Angeles now are being performed by city, state and federal authorities. There are three large abattoirs in Los Angeles which produce meat for interstate commerce and accordingly are subject to federal meat inspection under United States laws. The activity of the state meat inspection is directed at meat produced for intrastate commerce and is made mandatory by state law in all counties having over 27,000 population and for most part the state meat inspection laws are in consonance with federal requirements. The meat inspection activities of the city health department principally concern processed meat products, sanitation of premises and permit inspections under the provisions of city ordinances. There are engaged in meat inspection activities, 30 federal inspectors, 51 state inspectors and 21 city inspectors. The state conducts their meat inspection work in 53 establishments and the city has 3,658 premises under its supervision, 564 of which are meat processing establishments, the remainder being markets.

Federal Inspection

The Bureau of Animal Industry of the United States Department of Agriculture maintains a meat inspection office in Los Angeles composed of 30 people made up of 10 veterinarians and 20 lay inspectors. They maintain supervision over the three large abattoirs which perform extensive slaughter operations from which meat enters interstate traffic.

During the fiscal year there were a total of 229 animals condemned by the federal meat inspectors, on ante-mortem inspection; on post-mortem inspection 1,844 carcasses were condemned, and in addition parts of 9,660 carcasses were condemned on post-mortem inspection making a total of 11,733 carcasses condemned in whole or in part. In addition, there were condemned on reinspection and destroyed for food purposes, 20,942 pounds of meat and meat products.

State Inspection

The State Department of Agriculture, through the director, is charged with the responsibility of enforcing provisions of the Agricultural Code pertaining to meat inspection. This department also is required to approve and supervise municipal meat inspection, and the director is authorized to suspend inspection in any establishment either operating under state or state approved municipal inspection when state regulations are not complied with. According to state law, meat inspection at abattoirs may be made either by the state or state approved local city and/or county inspectors; in the city of Los Angeles it may be returned to the city health department at any time if the slaughterhouses so elect and the health department is willing to

assume it. Such revision is now under discussion as city inspection is less costly.

The State Meat Inspection Service maintains two offices in the Los Angeles area, one located in the state building in the city of Los Angeles and the other at Vernon, established June 1, 1938. This meat inspection service maintains a staff of 51 men composed of 35 veterinarians and 16 lay inspectors. This staff has under its supervision a total of 53 establishments, 27 of which carry on slaughtering operations and the remaining 26 are meat processing plants. The state laws and regulations for the most part are in consonance with the regulations of the Federal Bureau of Animal Industry governing interstate meat inspection service. During the year 1938 the state inspected in the Los Angeles area a total of 1,772,630 animals and condemned 7,442 of them; 657 carcasses were condemned because of tuberculosis infection. Details of this work are given in the following table:

Summary of Activities of State Meat Inspection Service in Los Angeles—1938

Species	Number Inspected	Number Condemned
Cattle -----	374,835	1,643
Calves -----	129,059	1,492
Sheep -----	727,960	3,295
Swine -----	537,338	1,007
Goats -----	3,438	5
Total -----	1,772,630	7,442

City Inspection

Most of the city meat inspection activities are guided by the California Meat Inspection Regulations as set forth in Special Publication No. 150 of the State Agricultural Code, 1937, under which the city operates as an approved meat inspection service under the supervision of the State Department of Agriculture. In addition to state regulations, meat inspection is further prescribed in Ordinance No. 77,000, Section 35.39, to 35.76. Good city ordinances are necessary in addition to the state law in that the state regulations do not establish standards for poultry dressing or rabbit slaughtering establishments. The city health department's meat inspection division devotes most of its time to poultry houses, meat processing plants and markets. During the year ending June 30, 1938, it inspected 204,635,700 pounds of food products and condemned 12,896,017 pounds.

The meat inspection division has inadequate office accommodation in the city health department building and it procures its clerical assistance from a pool shared by the various inspection divisions—housing and sanitation, milk, meat, fruit and vegetable, and rodent control. Such an arrangement is both inadequate and otherwise unsatisfactory.

Personnel

The present organization is comprised of the director, 1 chief meat inspector and 19 meat inspectors, a reduction in force of 2 since the present director assumed charge in 1935. The ages of these employees range from 39 to 66 years and 6 are over 60 years of age. Their service ranges from 2 years to 32 years with an average of 16 years.

The director of the meat inspection division has a degree of D.V.S. The position is classified under civil service and the salary is fixed at \$225 per month. Prior to 1935 the director, as head of the former combined milk and meat inspection division received over \$300 per month.

The chief meat inspector formerly was a lay inspector of the Federal Meat Inspection Service of the Bureau of Animal Industry, U. S. Department of Agriculture, engaged in making post-mortem examinations and now, despite his age, he is the best inspector in the division and enjoys the respect of the department and of the meat packers and businesses. The chief meat inspector receives a salary of \$195 per month and is approaching retirement age; it is going to be very difficult to replace him from the present staff. With the single exception of the director none of the 19 inspectors have had any college education and the personnel records show but one with four years of high school; four of the inspectors are recorded to have had experience with the Bureau of Animal Industry of the U. S. Department of Agriculture, and the recorded experience of the others previous to employment in the meat inspection division has been in the meat business or with packing companies, but whether as stock handlers or butchers is not recorded. The inspector rated by his chief as the most efficient shows no record of education beyond that of grammar school. Notices of examinations for entrance into the grade of inspector in the meat inspection division were not available but it is assumed that high school education or its equivalent plus practical experience is required. The entrance pay is \$145 per month with successive yearly increases to \$155 and \$170 beyond which there are no salary increments for length of service or superior productivity.

Administration

Inspectors report at the central office every Tuesday morning at 8 a.m. for one-half to one hour for review of this work and to receive work instructions; accumulated complaints received are ordinarily turned over to them at that time, but emergency complaints may be otherwise telephoned. Other days in the week, including Saturday morning, the inspectors report directly to their jobs. Each man is assigned a district to cover and one man is assigned to each of the district offices at San Pedro, Venice and Van Nuys, which represent an almost impossible area for each to cover adequately. Each inspector handles all work of the division in his district. A fish cannery and fish inspector was assigned to the harbor area who has since retired; his was the easiest task of all inspectors as the work was limited and he refused to undertake other work. All inspectors make daily reports and monthly summaries which are used to make up the monthly and annual reports of the division to the city health officer.

Clerical assistance and office management is provided by a central office serving the meat, milk, and fruit and vegetable inspection divisions. Comment on this office procedure may be found in the discussion of the housing and sanitation division. This central office keeps all records, makes all reports, handles all correspondence, receives all applications, sends out notices of renewal and handles all lapses of permits.

Transportation is furnished by the city health department as follows: 13 inspectors receive mileage for the official use of their personal

automobiles with the limit on amount of mileage subject to available funds. Mileage reimbursements have averaged 3 cents to 3½ cents per mile but it was stated that the inspectors have been getting full mileage since the first of the year; the city is supposed to reimburse employees at the rate of 6 cents for the first 200 miles, 5 cents for the next 400 and 4 cents for all mileage over 600 miles. Four inspectors purchase weekly passes on the Pacific Electric Railway and two purchase weekly passes on the Los Angeles Street Railways. One inspector is paid \$1 per week for reimbursement of his transportation; this arrangement is not clearly understood by anyone within or without the department as the employee is compelled to pay \$1.50 for a weekly pass to enable him to conduct the official business of the division and yet the department is reported to arbitrarily refuse to pay him more than \$1 in reimbursement.

Another department ruling found in the survey of this division was that relating to overtime. No payment for overtime is allowed; compensatory time off for overtime work must be taken up within the ensuing 10 days or be lost. The overtime is usually lost as the lack of personnel prohibits anyone taking time off because of the duties involved, especially as the presence of inspectors is required in meat processing plants when they are in operation.

Activities

The meat inspection division, according to the director, is charged with the following duties:

1. Routine sanitary inspection of all wholesale and retail meat markets.
2. Examination of meat in all places under permit of the city health department through this division for the purpose of establishing that same came from properly inspected sources; also for the purpose of passing upon its edibility.
3. Inspection of all sausage factories and meat processing plants which includes the unlocking of the official inspection stamp while same is required to stamp products, inspection of the meat used and locking up the stamp when the day's stamping is completed.
4. Taking samples of ground meat for the purpose of having same tested in laboratory to detect preservatives.
5. Investigating all complaints, contacting the complainant and checking with the market from which the meat was obtained.
6. Inspecting all vehicles transporting meat.
7. Inspecting all poultry both live and dressed, in poultry slaughterhouses, meat markets and in vehicles for distribution.
8. Inspecting all fish handled in the city, entailing original inspection at the municipal wharf and other places where fish is received from fishing boats; inspecting fish canneries.
9. Checking on new establishments, whether for processing, wholesaling or retailing of meat and fish, and for the slaughtering of poultry and rabbits.
10. Enforcing state law and city ordinances with reference to meat inspection.
11. Checking permits as to validity in all meat, fish, poultry and rabbit handling establishments.
12. Inspecting of veterinary hospitals.

Wholesale and retail markets are inspected for spoilage, adulteration and sanitation. Refrigeration temperatures are not permitted to be higher than 40° F. and no meat may be exposed unprotected. Sources of all meats are checked. Inspections average from once a

week to three times a month. Better markets with a record for fair dealing and cooperation are inspected but once monthly.

Sausage factories and meat processing plants are inspected daily when in operation. These plants must also be approved by the Bureau of Animal Industry of the State Department of Agriculture. Included in these plants are the preparation of sausage, meat pies, chip steaks, cube steaks, ravioli, chili meats, and tamales. According to state law the inspector must be present at the opening and closing of sausage plants and must stamp all products. The stamp is held in the possession of the inspector.

Meat distributors and peddlers, either wholesale or retail, are inspected when permits are renewed and otherwise casually whenever met.

Poultry slaughterhouses receive considerable attention from the city health department of Los Angeles, one of the very few in the United States which gives attention to the slaughter of poultry; neither federal nor state inspection is required of poultry slaughterhouses. Inspection is required daily when in operation and as the number of these has ranged from 115 to 148 in the past few years, which are scattered over the city, the activity is one of considerable magnitude. The municipal code defines the requirements for these slaughterhouses, but vests the jurisdiction over building construction and requirements in the Department of Building and Safety under section 91.260. City health department jurisdiction under the same code appears to be limited to the keeping of poultry by private citizens and to preventing their running at large (sections 34.09, 34.10, 34.11 of the municipal code). However, the sale of sick poultry is prohibited under the state pure food law and poultry receive their initial inspection for healthiness by the city health department within the city limits but do not receive any inspection at the shipping point. Dressed poultry are not stamped. Slaughterhouses pay a permit fee of \$25 per year regardless of size or of inspection requirements. There is no city ordinance requiring inspection for either poultry slaughterhouses or meat-processing plants (maximum permit, \$100) nor one permitting or requiring the establishment of a central plant for the initial inspection of poultry, quarantine or sick fowl, or for their slaughter. Both ordinances should be seriously considered as both would increase the efficiency of the work of the division.

Rabbit slaughterhouses likewise are given more attention by the city health department of Los Angeles, than elsewhere. The number is small, being only 19 in 1937-38, and the individual establishments are small and scattered throughout the city. Permits, with a \$15 fee, are required. The slaughterhouses are required to comply with some requirements as those for poultry and they receive the same attention from the meat inspectors. Initial health inspection of rabbits is given by the city and particular attention is given to wild rabbits from outside to guard against the dissemination of tularemia.

Poultry trucks, selling live poultry at wholesale or retail are inspected only when met on the streets. There were 113 of these under permit in 1937-38. Cars of live poultry are inspected briefly at the railroad yards on arrival, and the poultry receive a further inspection at the slaughterhouses both before and after killing. Dressed poultry, shipped in, is inspected at the markets.

Fish markets are inspected for spoilage only. Daily inspections are the rule in wholesale markets and weekly or semimonthly inspections in retail markets. Wholesale distributors and fish peddlers are inspected whenever the trucks and wagons are met on the street. Fish canneries are visited once weekly when checks on quality and sanitation are made; sanitation of the premises is the principal concern of the inspector as a state cannery inspector of the processes and product is always on duty. Fish and shellfish are occasionally shipped in by railroad and fish are inspected for condition and the shellfish to determine whether or not their origin was from approved sources.

There is no ordinance governing the inspection and control of veterinary hospitals other than the requirement under section 31.12 of the municipal code requiring that they pay a \$10 permit fee. They are inspected whenever an inspector is nearby, for general cleanliness, freedom from odor and prevention of nuisances. The director of this division, who is also city veterinarian, has operated a private veterinary hospital for many years, outside of his official time on duty with the city.

It is notable that the collection of permit fees is missing from this list of activities. The reason is that this division appeared to be operated on a more businesslike basis than the other permit inspection divisions and the issuing of permits and collection of fees is handled in the two offices outside of the division located on the fifth floor for applications and on the eighth floor for payment of fees. Permit renewals are handled in the following manner: permits are good one year from date; one month prior to expiration of the permits, notices (third copy of permit, dated one year ahead) are sent to permit holders together with new application forms or they may be delivered by the inspectors as part of their routine. Ten days after a permit has lapsed a second notice is sent out; all lapses at the end of one month are referred to the city attorney's office. Thereupon a notice—either an official letter or a "green card" official notice—is sent out by the city attorney setting a date for a hearing; these hearings are informal and result in clearing up nearly all lapses. Failure to attend or be represented at the hearing is followed by formal prosecution by the city attorney; prior to this prosecution, two sales by the delinquent must be witnessed by an inspector. Ordinarily a maximum of 60 days sees either the lapses cleared up or the business discontinued.

There were 3,335 businesses receiving 131,779 inspections from this division in 1937-38. Three hundred and three complaints were investigated; 2,255 orders to comply with regulations were issued and 3,653 samples were sent to the laboratory for analysis; 21,802,442 pounds of meat products were processed under city inspection, 421,000 dozens of tamales manufactured; 215,285-000 pounds of fish and 22,250,000 pounds of poultry handled under city inspection and a large quantity of meats, fish and poultry condemned. However, all the inspection is done by lay inspectors, only a few of whom are well trained; the director is available for emergency details, general supervision and as arbiter in the case of dispute.

During the year 1938-39 the meat inspection division had 3,658 establishments under its supervision, detailed as shown in the following table:

**Number and Class of Businesses Inspected in 1937-1938 by the Meat
Inspection Division ***

	1937	1938
Meat		
Retail markets	2,504	2,757
Wholesale markets	88	85
Sausage and processing plants	47	84
Meat distributors	210	237
Poultry slaughter plants	137	140
Rabbit dealers	19	20
Poultry truck operators	113	112
Veterinary hospitals	36	36
Fish		
Retail markets	41	40
Wholesale markets	40	43
Canneries	10	11
Wholesale distributors	18	19
Peddlers	72	74
Total number of businesses under inspection	3,335	3,658

* From Los Angeles Health Department Annual Report 1939.

The following table summarizes the number of inspections made of the various classes of establishments by the meat inspection division in the fiscal years 1937 and 1938:

Number of Inspections

	1937	1938
Meat markets	86,162	71,812
Fish markets	7,716	6,868
Poultry markets	11,251	10,650
Sausage factories and processing plants	18,222	18,202
Railroad cars—live poultry	68	91
Trucks and peddlers	2,968	14,603
Rabbit slaughterhouses	344	182
Railroad cars—fish and shellfish	67	23
Fish canneries	2,255	2,208
Total number of inspections	129,053	124,639

Miscellaneous

Complaints and investigations	303	2,221
Orders to comply	2,255	5,831
Samples for laboratory	3,653	2,335
Citations to office	319	252
Arrests	30	17
Fines collected	\$655.00	\$305.00
Fines suspended	25.00	\$250.00

The following table gives the quantities of meat and meat products produced under inspection by the meat inspection division in the fiscal year 1938:

Pounds of sausage	4,570,066
Pounds of smoked and processed meats	16,993,942
Pounds of lard	254,467
Pounds of poultry	14,076,891
Pounds of fish	166,000,000
Pounds of inedible offal for pet food	2,407,416
Pounds of edible offal	332,918
Total number of pounds	204,635,700

Condemnations

Pounds of meat	69,104
Pounds of tallow denatured	12,650,690
Pounds of sausage	7,051
Pounds of poultry	38,190
Pounds of fish and shellfish	130,924
Pounds of rabbits	58
Total	12,896,017

The following number of samples were taken and subjected to analysis for preservatives in the laboratory of the city health department:

Samples of Ground Meat	1937	1938
Number of samples	3,052	2,272
Number of samples containing preservatives	27	45

Approximately 7 per cent of the total expenditures of the city health department for the fiscal year ended June 30, 1938, were devoted to its meat inspection division and revenue fees collected through the work of this division represented about 25 per cent of the total revenue accruing to the city through the activities of the entire department. The merits and philosophy of utilizing the activities of a health department as revenue producing procedures have been discussed at some length herein previously; suffice it to say here that such procedure can not be condoned and should not be encouraged. The following table summarizes the expenditures and fee collections for the meat inspection division for the past eight years:

Year	Budgeted Expenditures	Fees Collected
1931	\$56,824	\$26,517
1932	54,277	21,572
1933	43,219	892 ^a
1934	44,861	4,447
1935	39,171	26,681 ^b
1936	42,736	27,630
1937	50,773	29,112
1938	57,440	29,546

^a State law passed 1932 making meat inspection a function of the state Department of Agriculture.

^b Permit fee system inaugurated as a revenue producing measure at the instance of the Director of the Bureau of Budget and Efficiency.

Summary and Conclusions

The meat inspection division comprises 21 employees including the director who is a veterinarian and 20 lay inspectors, one of whom is the chief supervising inspector; one inspector is stationed in the outlying area of Venice and another at Van Nuys. This leaves 17 inspectors to carry the bulk of this enormous load in the metropolitan section and is all out of proportion to the competence and ability of the present staff; even if the work could be equally distributed, each inspector would have to cover 174 places of business. Some of these meat processing plants, poultry and rabbit slaughtering establishments are of sufficient size to warrant the full-time service of one man.

In a division as seriously undermanned as this, it is not surprising to find conditions in its field work to be unsatisfactory. The city

health department is not to be criticized if the city administration fails to provide for its obtaining adequate numbers of qualified personnel necessary to accomplish results, but the city health department is open to serious criticism if it fails to submit appropriate budgetary requests or recommendations and instead reports that everything is all right when it should be known that such is not the case. In the annual report (1938) the city health department states: "The sanitary division, frightfully undermanned, has more than kept abreast of its work." This statement is conflicting within itself in that it is not reasonable that a division so seriously lacking in the number and qualifications of its personnel could more than adequately and effectively maintain the efficiency of its work; the city administration could hardly be expected to be concerned much about the needs of a division that is reported to be more than keeping abreast of its work.

The meat inspection division is not only lacking in the number of inspection personnel available but also the qualifications of most of the present inspectors are open to serious question. The character of the work being done in the city does not demonstrate competence. Most of the meat handling establishments do not show that they are under adequate supervision; many were found to be unacceptable and some are unfit to handle food products. Some of this deficiency, however, is due to the fact that each inspector has too much territory to cover effectively. There should be 12 or 14 inspectors under the guidance of a veterinary supervisor on meat alone and at least 15 inspectors under the immediate guidance of a market supervisor, are necessary to care for the rest of the work. All additions to the staff should be young men with science degrees from standard colleges, either in veterinary science, food chemistry or food bacteriology.

The general detailed discussion of personnel and administration in the section of this report on the milk inspection division is also applicable to the meat inspection division.

All of those inspectors over 60 years of age should be urged to retire under the city's retirement plan; then the staff should be recruited up to about 30 well qualified men. All of the inspectors devoting full-time to plant supervision should be uniformed in white washable outer garments and be required to wear them at all times when on duty; these should be purchased by the department in bulk, charged to the individual; they should be kept clean at city expense.

The director of the division should be employed on a full-time basis and should not engage in any other income producing activities along lines allied to his official work; he should be paid a salary of \$3,600-\$4,000 per year. He should have two supervising assistants, one on meat and one on markets; the meat supervisor should be a graduate of an accredited veterinary college and the market supervisor should have special training or a bachelor's degree in public health or sanitation from an accredited college or university. Each of these supervisors should be employed on a full-time basis and receive compensation at the rate of \$3,000-\$3,600 per year. All future additions to the inspection staff should be permitted to work up to a salary of at least \$2,400-

\$2,700 per year and those whose duties require considerable travel should be furnished a city-owned car or paid mileage without limit at the rate of 5 cents per mile.

Better ordinances are needed giving details of inspection requirements and better inspection is needed, more adequate in scope and intensive in application. Inspectors should specially be present at the opening of the day's work in the various establishments to see that the places are in condition to start; they should be present when the ingredients of processed meats are being prepared and processed. There is need throughout for greater sanitation as to walls, floors, tables, racks and barrels. Walls should be smooth with a light colored washable finish. Floors should be smooth and graded to drain. Adequate ventilation should be provided especially in those cases where smoking of meats is done. This could probably be accomplished through the installation of hoods placed and constructed in such a manner as to intercept the fumes and prevent their access to the entire building. All racks, receptacles, tables, and benches, trucks, et cetera, should be kept clean and constructed in such manner as to be readily cleanable and of material of such a nature that rust and corrosion is avoided. Toilet and lavatory facilities for employees should be conveniently available and supplied with soap, hot water and sanitary towels. All official approval brands or stamps should be maintained at all times in the possession of the inspector.

Serious consideration should be given to the construction of a municipal abattoir where all small dealers, particularly in small animals such as rabbits and poultry, would be required to bring their products for slaughter and processing. Under such an arrangement ante-mortem and post-mortem inspection could be maintained more efficiently and more economically and this meat could be and should be stamped the same as in the larger private plants. Consideration should also be given to requiring employees health certificates, especially in those cases where most of the foods are handled with bare hands; this requirement should extend through all departments whether under city, state or federal supervision. All employees whose work brings them in contact with the handling or processing of food products should be required to wear white washable outer garments.

It is felt that the director should give more time in the field to the supervision of his inspectors and the evaluation of problems and needs. Only recently did the director make what appeared to be his first complete tour of inspection of all meat-processing plants in company with state officials. Of this division, it may be said that a genuine effort is being made to secure better regulation and complete compliance with existing regulations without fear or favor. The principal problems are insufficient numbers and deficient qualifications of personnel, need for a revision of regulations and ordinances applying to this field of activity, a better definition of authority within the municipal code and an increase in standards and pay for inspectors to attract and hold good men. One secretary-stenographer should be assigned to the meat inspection division at a salary of \$125-\$140 per month.

The results secured by the staff are measured by the individual capacities of the inspectors, some excellent, some good and some indif-

ferent. They are also measured by the support given by the executive offices; apparently (as judged by small actions such as a refusal to pay the salary formerly paid to the director and commensurate with the duties and responsibilities of the office) full support to the division has not been given. The city health officer and his aides should support the director of the division when he is right. There can be no division of authority and responsibility, no clash of personalities, without the work, the staff, the department and the public, all suffering as a result thereof.

DIVISION OF FRUIT AND VEGETABLE INSPECTION

Among the various anomalies that have grown up during the years within the city health department organization and sap its limited financial strength is that of the fruit and vegetable inspection division. This division is charged with the inspection of all fruits and vegetables offered publicly for sale within the city of Los Angeles.

The division comprises one chief supervising inspector in charge and seven inspectors. One additional inspector carried on the division payroll is assigned to the Van Nuys Health District office and also does general sanitation work in that district. The pay of the chief inspector is \$195 per month and the maximum of the inspectors is \$170 per month; the entrance salary is \$145 per month with a raise to \$155 at the end of one year and to maximum pay at the end of two years.

Personnel records were available for only seven out of a total of nine employees in the division. One inspector had a college education with a B.S. in Agriculture (Illinois), followed by an M.S. in Botany (University of Southern California). The chief supervising inspector had experience in the produce business as had five of the inspectors. The two inspectors for whom no personal history was available are recent employees; one of these appears to have the ability to make an excellent employee.

The qualifications for entry as an inspector into the fruit and vegetable inspection division now prescribe either graduation from a recognized college or university with major work in horticulture or graduation from high school which preferably included one year of chemistry and one year of physics, or the educational equivalent, plus two years of full-time responsible experience in the inspection, handling or sale of fruits, vegetables and nuts. In addition the candidate for appointment must have special knowledge involving names, classes and species of local fruits, nuts and vegetables, plant diseases, insecticidal spray preparations and the standardization and grading of produce and must have a good knowledge of California laws and Los Angeles ordinances governing the handling and care of fruits, nuts and vegetables; he must have firmness, good judgment, integrity, good address and tact, and be in good physical condition.

The following announcement is illustrative of the current statements of required qualifications and duties to be performed; it was issued to establish a list of eligibles for appointment to the position of inspector in the fruit and vegetable inspection division:

Fruit and Vegetable Inspector—Code 5153

Last Date to File—5 p.m., Monday, April 10, 1939

Date of Test—8:30 a.m., Saturday, April 15, 1939

Minimum Age: 25 years.

Requirements: (1) Education equivalent to that represented by graduation from high school, preferably including one year of chemistry and one year of physics, and two years of full time responsible experience in the inspection, handling, or sale of fruits, vegetables and nuts; or (2) graduation from a recognized college or university with major work in horticulture. Good knowledge of the California laws and Los Angeles city ordinances governing the handling and care of fruits, vegetables and nuts; knowledge of the names, classes and species of fruits, vegetables and nuts grown or offered for sale in the Los Angeles area; knowledge of and ability to recognize diseases, scales, rots and other factors rendering fruits, vegetables or nuts unfit for sale; some knowledge of spray preparations used in treating fruits, vegetables and nuts; some knowledge of the standardization of fruits, vegetables and nuts; ability to make thorough inspections of markets, canneries and other places where fruits, vegetables or nuts are offered for sale or prepared for the market; firmness, good judgment, integrity, good address; tact, good physical condition.

Duties: Under general supervision, to inspect wholesale markets, retail markets, storage plants, depots, canneries, cars on track or any place where fruits, vegetables, nuts, dried fruits and canned fruits are sold, offered for sale, handled or stored; to condemn and destroy any fruits or vegetables which for any reason are found to be unfit for human food; to correct insanitary conditions or insanitary methods in all places where fruits and vegetables are handled or sold; to investigate complaints on food poisoning of canned goods and poison sprays used for fruits and vegetables and to obtain samples thereof for chemical analyses; to prepare daily reports of inspection; to enforce laws and ordinances governing the handling and sale of fruits and vegetables unfit for human consumption; and to perform related work as required.

Salary: \$145-\$155-\$170 per month.

Scope of test:

	Relative Weights
1. Written test -----	6
2. Qualifications, determined by interview-----	4
Total-----	10

The length of service in the department for the employees of the fruit and vegetable inspection division ranges as follows: Chief supervising inspector, 27 years; two inspectors, 16 years; one inspector, 14 years; one inspector, 12 years; one inspector, 5 years; and there were two recently employed. The ages of all inspectors ranged from 36 to 62 years.

The division occupies two office rooms on the fifth floor of the city health department building. The one office for the chief inspector is adequate in size and office equipment, but needs extra chairs; the lighting is not good and the office itself is drab in appearance. The second office room for the inspectors is a little small to accommodate all the men, but appears to be sufficient for the number that are likely to be in at any one time; like the chief inspector's office it is also drab in appearance but it does have more light. More filing space and equip-

ment for each inspector would aid them in keeping their records in better shape.

The visitor may well be confused in trying to make applications for and to pay fees for the various permits. An information clerk is stationed on the ground floor in one corner of the building entrance hall, but the desk is neither prominently located nor posted so to direct the visitor to it. Entering the building he may proceed to the executive offices on the seventh floor, or to the eighth floor where all permit fees are paid, but only applications for permits under the jurisdiction of housing and sanitation division are received, or to the fifth floor where only applications for permits for milk, meat or fruit and vegetable establishments are received and the fees for which must be paid on the eighth floor.

It has been pointed out elsewhere in this report that each division of the city health department undertakes to keep its own personnel records, although at present an attempt is being made to centralize these records in the office of the executive assistant. All such records for the three food control divisions—milk, meat, and fruit and vegetable—as may be required are kept in a common office which handles also the records, permits, personnel files and all clerical detail including reports and correspondence. Naturally detail of records is kept pretty much as each division chief desires for the work of that division and a great deal of credit must be given to the office manager (rated as senior clerk) for the freedom from office detail which each of the three division chiefs enjoy. Incidentally this employee appears to be the most capable and promising personnel officer and office manager in the entire department.

In the fruit and vegetable inspection division, inspectors are required to collect permit fees for delinquent establishments, accepting checks payable to the city only. Toward the close of the survey one of the inspectors was bonded for the purpose of collecting fees, in cash, from farmers, peddlers, or others who bring produce into the wholesale markets for sale. A similar procedure is followed by a bonded clerk who collects license fees for the city clerk. The principle of collecting fees and its relation to public health activities is discussed elsewhere in this report.

All the inspectors work from 8 a.m. to 5 p.m. five full days per week, and on Saturday mornings as necessary. Those making inspections at the wholesale markets regularly begin their work at 6 a.m. and sometimes as early as 4 a.m. On the other hand, the inspector on cannery inspection may not start his work day until 1 p.m., according to the pack. There is frequently a good deal of night inspection done which necessitates further variation in the hours of duty. The balance of the inspection force ordinarily work from 8 a.m. to 5 p.m. for five days a week and utilize Saturday mornings to clean up odds and ends and for emergency calls.

Transportation for the official work of this division faces the same problems and presents the same complaints. Four inspectors use their own personal automobiles and are allowed mileage rates in proportion to what is available in the mileage account of the department. In any case these four men are allowed a total maximum of 350 miles per month and official mileage in excess of that, no matter how necessary, must be furnished by themselves. It is estimated that the 350 miles

usually lasts about 20 days. The inspector must either stop traveling then or travel the rest of the way at his own expense. Four men have street car passes, a slow method of transportation in a city of the magnificent distances presented by Los Angeles.

As in the other food control divisions, the follow-up of complaints and the permit fee system take as much as one-half to two-thirds of the time of the majority of the inspectors to the proportionate diminution of more productive effort toward the improvement of public health. Complaints are received by person, mail or telephone at the common central office shared by the food control divisions on the fifth floor of the city health department. Complaints are referred to the pending files of the proper inspectors who obtain them when they report personally to the office each morning to make reports of the previous day's activities and to get the day's work; they also keep in touch with the office during the day by telephone. The chief supervising inspector and the two inspectors assigned to wholesale market inspections, who proceed at 6 a.m. direct to these markets, pick up at the office after they complete the market work, any complaints originating at or traced to these markets and take them with them for attention the following day.

The inspection service includes wholesale markets, retail markets and stores, commission houses, peddlers' vehicles, fruit and vegetable canneries and preserving plants. Cold storage plants are inspected only on request. There is no regular routine covering these inspections and there have been no temperature or other requirements prescribed.

The inspection work at wholesale markets as produce comes in is essentially of ascertaining compliance with standards of quality and edibility; sanitation constitutes a minor part of the work. Inspection requires immature, over-ripe or decayed fruit to be culled out and checks on spoilage, insect infestation and produce carrying insecticide spray residues in excess of the limits allowed by the State Department of Agriculture. This agency accomplishes the principal spray residue control largely at shipping points of origin and state inspectors regularly are not on duty at these markets. Suspected produce may be also sampled by the inspectors on arrival and tested by the chemist of the city health department and produce with residues exceeding the tolerance limit are condemned as unwholesome; standards of tolerance established by the Food and Drugs Administration of the U. S. Department of Agriculture are followed.

Two inspectors are detailed to cover the three principal wholesale markets, starting their day at 6 a.m., and sometimes one to two hours earlier. The chief inspector also reports first to the wholesale markets at 6 a.m. to assist in the inspection, relieve the other men and assume responsibility in case of disputes.

One inspector is assigned to the Grand Central Market, the largest retail market in the city, and some other adjacent markets in the central business district. The Grand Central Market at Third and Broadway is the largest retail market in the city. Open from 8 o'clock in the morning until 6 o'clock at night, the city inspector works there from 10 to 12 in the morning and again for two hours in the afternoon and also on Saturday mornings. The principal difficulty centers around the bargain markets or stalls where produce is sold with a close margin of profit at substandard prices; much of this produce is "on

the line" or close to the "line," the greater part at such a stage of ripeness that it can not be carried over to the next day. Spoiled or condemned foodstuffs are carried to the garbage room in the basement. Nothing is permitted to be carried out of this storage room except by the scavenger and it is usually disposed to the hog ranches. The inspector on duty here also collects permit fees. The balance of his day is spent in inspections at adjacent smaller markets in the central business district.

One inspector is assigned to the Ninth Street wholesale market and also covers retail markets located south of Slauson Avenue, except in the San Pedro and Wilmington harbor areas. Fruit and vegetable inspections in the outlying districts, San Pedro, Venice, Van Nuys and Watts, are accomplished by the general sanitary inspectors who include fruit and vegetable inspection in their routine. This inspection work is being capably handled in these areas.

Three inspectors are assigned to districts roughly defined as follows: Hollywood; north of Pico and east of Vermont; south of Pico to Slauson. There is no regular routine followed in any of these districts other than the Hollywood inspector who divides half his time between retail and wholesale markets. In general, the time of all three is divided about one-third on sanitation, one-third on quality of produce and one-third on the collection of permit fees.

One inspector is assigned to the inspection of fruit and vegetable canneries and preserving plants. Incidentally it was a pleasure to accompany this employee on his tour of inspection and to note the respect for and appreciation of his services, manifested by the businesses over which he has supervision. There are 18 of these, scattered over the city, entailing considerable travel. These canning plants and their processes are also primarily under the supervision and control of the State Department of Public Health and state inspectors are in attendance. Safety features such as pressure processes are under the supervision of the State Industrial Accident Commission. Inspection of these canneries and preserving plants by the inspector of the fruit and vegetable inspection division of the city health department covers sanitation as well as the quality and edibility of the produce. Sanitation and cleanliness (good housekeeping) are entirely up to the city inspectors. Physical examinations of employees are not required by ordinance and are voluntary at the suggestion of the inspector. Cooperation with state inspectors is limited largely to assistance in the control of temperatures of processing.

The one inspector assigned to canneries and preserving plants has a job on his hands trying to adequately cover the 18 plants scattered over the city. Produce coming in directly, from the farms, with or without state inspection and not flowing through the wholesale markets, must receive the same attention from him as given at the wholesale markets. Some of the plants naturally give considerable attention to the selection, sorting, washing and otherwise protecting the product to be preserved or canned and these plants need only occasional attention.

Others would appear to need constant supervision; an instance of the latter occurred when a preserving plant was inspected only with the idea of securing some information on processes and methods. However, at the time of the inspection, plums were being delivered to be cooked

into a plum puree for storage, to be used later for plum jams. These plums were being dumped into a washer, but were leaving the washer on an endless belt without any sorting, emptied into boxes at the other end, and were being carried to the pulpers without any further attention. The pulpers did remove some of the debris along with the pits. It was noted, however, that immature and overripe fruit, twigs and leaves were all being permitted to go into the pulping machine. The inspector immediately ordered that sorters and cleaners be placed at work at the belt.

At the same place, flat trays of tomatoes had been delivered. One flat was in an active state of spoilage. As tomatoes and tomato packing come under the jurisdiction of the inspectors of the State Department of Public Health, the attention of the state inspector on duty was called to these particular tomatoes. His statement was that the other state inspector on duty had passed those tomatoes. Further, he admitted that, while not under his jurisdiction, the plums were not being properly handled; a telephone was convenient but apparently a real opportunity was lost for cooperation by calling the authority having jurisdiction, the city health department. This fruit and vegetable inspector's field of activity is a full-time task at all times and additional assistance should be made available to carry on the assigned duties, particularly during the picking and packing seasons.

Another problem faced by this division, in addition to the transportation problem, is a lack of personnel, even though the division, through fees collected, reimburses to the city the actual operating expenses of the division. The elimination of permit fee collection by inspectors of the city health department would release badly needed time to be used to better advantage.

The amount of work done by this division is enormous, considered as a municipal function. In the 1937-38 annual report it was estimated that 72,000 carloads representing 115 items of produce were received in the local markets of which 86 per cent were from California and the greater part of that within a radius of 200 miles. During the year 3,892 businesses received 139,860 inspections and 1,570,667 pounds of fruit and 850,220 pounds of vegetables were condemned. There is a serious doubt as to whether much of this activity, large as it is, can be strictly classed as important protection of public health. Certainly the consumer should be protected from misrepresentation and fraud, but it is questioned whether this is a proper activity of the health department; with the exception of protection against insecticide spray residues, irrigation with polluted waters, checking general sanitation, protection in processing and proper refrigeration, all of which have some public health significance, the bulk of the work involves the prevention of the sale of immature, unripe or spoiled fruits and vegetables, which are inedible or of poor quality but do not ordinarily constitute a danger to the public health as much as to the private purse.

Reports are filed daily by the inspectors, each report being divided into types of establishment inspected, number of inspections made, and the quantity in pounds of any item of foodstuffs condemned. Compiled monthly reports are made for the entire division to the city health officer. Condemnation orders are made out in triplicate; the original and first copy are given to the merchant and the third copy is retained as

office record. These condemnations are often used in support of any consequent claims against commission houses and shippers. The ordinances governing the inspection of fruit and vegetables are Nos. 68,600 and 77,000 of the municipal code.

The division cooperates closely with the division of housing and sanitation and with the meat and milk inspection divisions within the department. Cooperation is maintained with the State Department of Public Health in the inspection of canneries and the condemnation of spoiled canned goods; with the U. S. Customs Service in the inspection and condemnation of Mexican vegetables, which are subject to about 3 cents per lb. entry duty; and with the State Department of Agriculture in insecticidal spray residue control.

RODENT CONTROL DIVISION

The rodent control division was organized September 13, 1926, as an activity of the city health department to continue the rat control and eradication campaign inaugurated jointly by the city health department, the State Department of Public Health and the U. S. Public Health Service, following the outbreak of bubonic plague in Los Angeles in November 1924. The campaign at first directed against rats, was extended to all rodents following the trapping of a plague-infected squirrel within the city limits on September 12, 1928.

The offices of this division are located on the ground floor of the city health department building, convenient of access to both the public and to the inspectors who may be rat-laden or trap-laden. The space is both adequate and well lighted but has dark interiors which can be easily remedied by proper paint. Office equipment is adequate in both quantity and quality. One desk is utilized by an information clerk who is not carried on the pay roll of the rodent control division. Clerical assistance is provided only by the information clerk in the office, there being no clerk specifically assigned to the division. This division does not collect any permit fees nor receive permit applications.

The organization includes a director with the title of assistant director, one supervisor and eight inspectors assigned to the central office, two inspectors assigned to the San Pedro Health District office which includes the harbor area and one inspector assigned to the Venice Health District office. The inspector assigned to the Venice office, who receives but \$140 per month although half of his duties are general sanitation with the same responsibilities as the sanitation inspectors who are paid a maximum of \$170 per month; further, he is reported by his immediate chief to be very efficient in his work and well received in his relations with the public. There is no rodent control inspector assigned to the Van Nuys Health District office but for reasons not clear the supervisor in charge of this office is carried on the rodent control division pay roll at a rodent control supervisor's salary of \$170 per month although he has the duties and responsibilities of a supervisor of housing and sanitation which position is paid at the rate of \$185 per month. One of the rodent control inspectors is assigned to the city health department laboratory to make the post-mortem examination of rodents for the detection of suspicious signs of plague. He also makes bacteriological examinations of water samples submitted to the laboratory. In addition, the personnel of the rodent control division includes one office caretaker and one truck driver.

The qualifications prescribed for entry as inspector in the rodent control division are: high school education, or equivalent, preferably including one year of chemistry and one year of physics, and experience in rodent control, public health or sanitation work. The applicant must have a knowledge of California laws and city ordinances relating to public health and sanitation; must be familiar with the principles of sanitary science, spread of plague infection from rodents, the habits of rats and the location of rat harbors and with the methods of rat-trapping; he must be able to meet and deal with the public and possess integrity and firmness, tact, good judgment and be in good physical condition. The following is a recent announcement issued by the city Civil Service Commission of the qualifications required and duties to be performed by appointees to the position of inspector in the rodent control division:

Rodent Control Inspector—Code 5151 (q)

Last date to file—5 p.m., Friday, March 5, 1937

Date of test—to be announced later

Minimum age: --- years.

Requirements: Education equivalent to that represented by graduation from high school, preferably including one year of chemistry and one year of physics, or experience in rodent control, public health or sanitation work. A knowledge of California state laws and Los Angeles city ordinances governing public health and sanitation; familiarity with the principles of sanitary science; of plague infection from rodents; the habits and characteristics of rats; the location of rat harbors and the science of rat trapping; ability to meet and deal with the public; integrity and firmness; tact, good judgment and good physical condition.

Duties: Under general supervision, to be responsible for an assigned district or for one or more important functions pertaining to the inspections affecting rodent plague control in the city of Los Angeles; to inspect premises for rat harbors; to make sanitary inspections of garbage, waste matter and food placements; to inspect buildings for rat runways and rat proofing; to place, set, bait and inspect rat traps and remove catch; to repair traps; to work in the Rodent Control Plague Laboratory as required; to answer complaints; to poison and shoot rats and other rodents; as assigned, to meet and inspect all foreign ships and all ships that come from foreign ports to see that the Los Angeles Harbor is safeguarded by requiring that rat guards be placed on all lines to ships; that scuppers are properly plugged; to deal with, instruct and educate the public in matters affecting rodent plague control; and to perform related work as required.

Salary: \$140.00 per month.

Scope of test:

Relative weights

1. Written test -----	--
2. Qualifications, determined by interview-----	--
Total -----	10

NOTE—Candidates will be notified at a later date when and where to appear.

The city health department does not require the two years experience following graduation from high school or the equivalent college education for entry into the inspector's grade in the rodent control division, thereby indicating that the work of these inspectors is not

regarded to be as important as the work of the inspectors in the other divisions of the department and therefore entrance requirements need not be so rigid; the department further apparently confirms this by refusing to recommend for the rodent control inspectors the automatic increase of their pay for two successive years as is done for inspectors in all other divisions. The entrance salary is \$140 per month and there is no provision for automatic salary increases at the end of one and two years of service. The rodent control supervising inspector receives \$170 per month with no provision for increase. The assistant director receives a salary of \$225 per month.

Here again is found one of those curious anomalies that keep cropping up in this survey of the city health department. Further, the direction of the work of the division is placed under an assistant director, equivalent to the position of chief supervising inspector. Yet the salary paid to the assistant director is one of the top inspection staff rates although the incumbent has not had as many years of service as others in equivalent positions. The answer is simply that the assistant director seems to be particularly *persona grata* to the executive officer and goes along smoothly in carrying out instructions from the executive office. These remarks are not intended to reflect on the assistant director, but to point out the department's failure to give him the title of director along with the duties and responsibilities with which he is charged and for failure to pay comparable salaries to holders of equivalent positions.

The functions of this division as defined by its director are:

1. Keeping a rodent index. Trapping, poisoning and shooting are employed to secure an adequate number of rats and other rodents from all parts of the city. The catch is tagged for identification and delivered to the laboratory for examination.
2. Securing the rat-proofing of all food establishments which operate under permit of the city health department. (N.B.: No indication is given as to whether or not warehouses not under permit are included in the rat-proofing program.)
3. Application of poison baits to all buildings before they are moved or demolished under permit from the Department of Building and Safety; the latter informs the health department of all applications made for such permits.
4. Inspection of all food establishments requiring liquor permits from the State Board of Equalization; a large percentage of these also require health department permits as food handling establishments.
5. Review of plans of proposed food establishments submitted by the Department of Building and Safety. (N.B.: There are no engineers or architects on the staff of the rodent control division.)
6. Enforcement on ships of the city rat-guard ordinance docked at Los Angeles harbor and the inspection for rat infestation of all crated and burlap-wrapped (potentially rat-harboring) cargo discharged in the port.
7. Supervision of the spread of poison baits in the harbor district and in the parks.
8. Extermination of rats from private residences whose tenants and owners are unable to employ licensed commercial exterminators.
9. Inspection of north boundary of the city to control C. Beecheyi squirrels.
10. Cooperation with the State Department of Public Health in all rodent control activities within the city.
11. Exhibition of educational rat-proofing models and rodent control motion pictures.
12. Maintenance of a card index of all food establishments in regard to their rat-proofing status.

Transportation needed for the work of the rodent control division is provided by purchased weekly street car passes or by city automobiles, two of which are assigned to the central office, one to San Pedro and one to Venice Health District offices. The assistant director and the supervisor are authorized mileage for the use of personal cars; their reimbursement depends upon the amount of money available.

Complaints are received in person, by mail or by telephone, are classified and referred to the pending files of proper inspector. Applications covering food establishments of all sorts are referred to this division by housing and sanitation, meat and fruit and vegetable divisions and the State Board of Equalization for liquor control. These are referred to the proper inspector for a report on the rat harborage and rat-proofing status of the premises. Plans of proposed food establishments or of proposed changes in existing food establishments are referred to the division by the department of building and safety. The assistant director spends nearly all his time at the office on these and administrative matters, holding himself available for emergency outside work only.

The supervising inspector spends two hours in the office each morning on administrative routine and assures direction of the division during the absence of the director. He has charge of the trapping crews and does inspection for rat-proofing in the congested downtown area. Regular trapping for rats is done only in the congested areas which are blocked out in five districts, each of which is trapped every three months to determine the rat index, the inspectors being changed from one trapping district to another every three months. All report at the beginning of each day to the central office.

In the harbor area, two rodent control inspectors are assigned to the San Pedro Health District office, reporting directly to the supervisor in charge. Reports of these inspectors are made to this supervisor with copies forwarded to the director of the rodent control division. One of these inspectors has the impossible task of adequately patrolling on foot, 50 or more miles of waterfront for the purpose of enforcing the city rat-guard ordinance on vessels in port. It is not a simple job as many of these vessels are shifted frequently from wharf to wharf with scant attention paid to rat-guards by the ship's crew. At times during the survey various parts of the harbor area were visited and each time it was observed that rat-guards had slipped or opened up on hawsers where vessels had been shifted to facilitate unloading. The other inspector also assists during rush periods in this ship rat-guard patrol in addition to his assigned duties of trapping and rat-proofing inspection. Poison baits used in the harbor area are furnished and distributed by the harbor department under the supervision of these inspectors. Plans for structures in the harbor area where food is handled are submitted by the harbor department to the San Pedro office of the city health department for prior approval as regards rat-proofing provisions.

The status and duties of the rodent control inspector assigned to the Venice Health District office have been discussed. His rodent control activities consist of trapping, distribution of poison baits, prior approval of plans and rat-proofing inspection. At Van Nuys, the rodent control supervisor who also is in charge of the office, clears

Board of Equalization permit applications and makes the necessary rat-proofing inspections.

In general trapping is employed in the congested areas only and poison baits are used in the less thickly settled and the outlying areas. Red squill is used exclusively for rats. Thallium is not used, public complaint to the contrary, and strychnine is used only for ground squirrels. Every rodent picked up is tagged for identification and sent to the laboratory where selected carcasses are examined; immature and decomposed rodents are discarded without examination. In the less thickly settled areas, trapping follows complaints only; one inspector is assigned as a scout trapper and investigates these complaints, trapping around each source if justified, to determine the rat index. He also inspects rat-proofing and distributes poison baits in the outlying areas.

One inspector, traveling by automobile entirely, distributes poison baits, principally in the outlying sections following complaints arising in the southern part of the city. Again the purpose is to determine the rat index in the area; the city does not and can not officially act as rat or rodent exterminators. Another inspector investigates the rat-proofing status of buildings in the outlying areas in this part of the city. Every three months a rodent survey is made along the north boundary line of the city to determine the incidence of ground squirrels (C. Beecheyi). Squirrels are shot, tagged and sent to the laboratory for examination for plague infection.

Excellent cooperation is secured from all interested federal, state, county and city agencies. The cooperation of the other divisions within the city health department, including the laboratory, have been discussed. The department of building and safety gives a three-day notice to the city health department prior to the demolition or moving of buildings; poison baits are distributed in them. Poison baits, furnished by the city park department, are also distributed in the city's many parks. The harbor department works very closely with the city health department. All vessels entering the port are inspected to enforce the city rat-guard ordinance and to check over rattan and burlap wrapped freight particularly that originating in China and Japan and which provide excellent rat harborage, to assure the absence of concealed rats. The State Department of Public Health sends the city health department notification of any plague-infected rodents captured in the environs of the city. The county agricultural agent is also most helpful; he spreads poisoned barley to control ground squirrels in the county outside the city limits. He also inspects all farms and ranches located within and without the city for rodent infestation and when present, serves a notice requiring their extermination. If not done within the time limit allowed in the notice, the county then proceeds to exterminate the rodents and places a lien against the property for the costs. Because of this cooperation the city need only guard its northern boundary in the foothills and mountains.

Much good work has been accomplished by the rodent control division in spite of the lack of specific ordinances defining duties and authority. This is due in part to the personnel engaged in the work and in part to the public interest. Until recently WPA projects temporarily permitted extra rat-catching and also the assignment of a garbage-can inspection squad to report on compliance with city ordi-

nances in this respect. Rat-proofing by WPA is also a job of the past due to the expiration of the WPA projects.

The reports of the rodent control division do not stress the permanent accomplishments accruing from rat-proofing work nor the excellent educational work done by it through lectures, motion pictures and the distribution of literature. Nor does any report mention the rat index of the city, although the maintenance of this index is mentioned first among the activities. The total accomplishments of the division are not summarized nor evaluated, unless the fact that no plague-infected rat has been reported since 1932 can be construed as such. No check on the effectiveness of the use of poison baits has been made by the division. In view of the conflicting reports and opinions relative to the merits of the use of poison baits, especially red squill, as a rat control measure, an opportunity is available for this division to make a general study of all baits and their effectiveness.

Summary and Conclusions

The following table gives a comparative summary for the last eight years of the amount and type of work accomplished, the number of personnel engaged, the total expenditures made and the total amount of revenue collected respectively by the housing, food control (excepting milk) and general sanitation inspection services of the Los Angeles City Department of Health.

Record of Accomplishment,¹ Personnel, Expenditures and Revenues

Division	1937-38	1938-37	1939-36	1934-35	1933-34	1932-33	1931-32	1930-31
Housing and Sanitation								
Inspections—								
Housing	43,838	42,666	43,544	—	42,149	59,214	58,422	69,809
Food Establishments	67,320	68,515	83,278	—	85,134	85,171	91,384	78,869
Ind. Establishments	2,993	3,159	4,133	—	8,056	14,305	14,771	13,386
Miscellaneous	45,696	40,841	44,134	—	90,816	29,322	36,804	34,349
Surveys	54,768	56,377	56,002	—	—	78,674	71,552	74,834
Mosquito Control	4,547	3,138	3,148	—	3,235	—	—	—
Beverages, etc.	5,630	5,576	5,319	—	2,925	—	—	—
Total	224,792	220,272	239,558	225,762	232,360	263,486	272,993	271,247
Notices Served	52,381	49,303	56,490	—	55,905	60,486	74,865	71,875
Abatements, etc.	137,550	140,217	175,397	160,489	163,858	194,527	227,816	254,604
Applications for Permits	24,686	25,029	24,791	—	26,746	25,762	24,322	27,900
Applications Granted	19,948	23,778	24,554	24,217	26,473	23,860	24,351	27,132
Complaints inv.	17,792	19,041	16,350	—	15,754	13,314	12,462	11,389
Mosquito Control—								
Breeding Abated	796	620	501	—	373	—	—	—
Sq. Ft. Oiled	681,787	2,090,775	3,808,992	—	2,395,400	—	—	—
Samples Collected—								
Beverages	106	10	65	—	381	—	283	—
Water	3,726	3,144	2,870	—	1,633	—	1,317	—
Swimming Pools	1,622	1,905	1,737	—	691	—	27	—
Miscellaneous	183	134	185	—	—	—	—	—
Food Poisoning—								
Investigations	432	568	320	—	—	—	—	—
Cases	1,609	1,332	801	—	144	—	—	—
No. of Employees	63	63	63	63	60	62	61	61
Expenditures	\$133,342.93	\$133,013.03	\$127,677.34	\$120,246.34	\$114,299.17	\$110,310.99	\$126,911.16	\$131,067.25
Revenues	98,205.98	101,085.28	105,039.31	102,083.54	62,840.00	71,928.50	58,156.00	52,556.70

Record of Accomplishment,¹ Personnel, Expenditures and Revenues

Division	1937-38	1938-39	1939-40	1940-41	1941-42	1942-43	1943-44	1944-45	1945-46
Meat Inspection—									
Business under inspection									
Total Inspections	3,335	3,150	2,717	2,067	2,280	2,157	2,166		
Complaints inv.	131,779	141,408	138,119	112,038	97,516	60,387	56,692		
Compliance Orders	303	529	902	1,116	2,139				
Samples	2,255	12,264	13,142	2,764	1,611				
Samples	3,653	3,716	3,244	750					
Meat Products									
under inspection									
—pounds ³	381,000,000	440,000,000	407,000,000	600,000,000	7,550,000				
Condemnations									
—pounds ³	15,100,000	13,000,000	14,700,000	9,870,000	175,000				
No. of Employees	21	21	21	21	21	21	21		
Expenditures ²	\$57,439.77	\$50,772.80	\$42,735.86	\$39,170.90	\$43,218.92	\$54,276.68	\$56,823.83		
Revenues	29,546.00	29,112.00	27,630.00	26,681.00	891.95	21,572.15	26,516.61		
Fruit and Vegetable Inspection—									
Businesses under inspection									
Total Inspections	3,892	3,819	3,310						
Complaints inv.	139,680	184,071	337,943	200,000	110,065	114,659			
Samples									
Condemnations—									
Fruit—pounds	1,570,667	1,555,265	2,194,052	1,784,961	1,953,317	5,388,508	1,992,993		
Vegetables—pounds	850,220	1,747,889	888,124	586,122	707,320	679,719			
No. of Employees	8	8	8	8	5	5	5		
Expenditures ²	\$13,902.62	\$14,918.41	\$14,917.06	\$14,324.98	\$9,570.07	\$10,958.25	\$11,221.98		
Revenues	13,264.00	13,221.00	14,863.00	13,929.00					

Record of Accomplishment,¹ Personnel, Expenditures and Revenues

Division	1937-38	1936-37	1935-36	1934-35 ²	1933-34	1932-33	1931-32	1930-31
Rodent Control—								
Rodents Caught -----	63,305	119,219	83,791	83,990	119,331	146,817	80,297	46,464
Complaints -----	4,494	4,786	5,439	-----	4,620	-----	2,850	1,687
Baits Placed -----	1,739,790	1,646,086	2,455,247	1,352,000	915,800	2,468,100	57,600	3,064 lb
Ship Inspections -----	9,831	13,529	8,227	5,088	17,794	28,518	2,243	2,553
Premises Baited (Bldg. and Safety)	2,717	1,453	2,215	-----	531	-----	-----	-----
Inspections -----	6,987	-----	6,693	9,391	-----	8,086	6,249	9,263
Notices Served -----	794	596	968	-----	464	1,358	556	323
Abatements -----	574	490	1,115	2,000	1,097	1,138	504	278
No. of Employees -----	15	15	15	15	15	15	15	15
Expenditures -----	\$32,121.78	\$32,728.63	\$29,063.42	\$27,056.35	\$26,713.61	\$91,978.72	\$40,721.77	\$36,318.65

⁰ Limited annual report available.¹ Partial, not complete for lack of space or reporting.² Does not include administrative overhead or other costs.³ Incomplete or lacking.⁴ Three inspectors additional for 5 months.

Summing-up the many activities of the Los Angeles City Health Department in the field of sanitation is not an easy matter. The employees of the city health department seem to be everywhere and into almost everything which relates to the public. The organization appears to have just grown through the years and the survey revealed some antiquated activities still going on hand in hand with others that are modern and often startling.

The entrance standards of employment at present appear to be quite high but apparently the standards, in the past at least, either have been deficient or have existed on paper only. There is a marked dearth of highly-trained, qualified men to fill key positions. In spite of these lacks, some of the employees, by individual study and application to their work, have achieved enviable reputations in these fields, both within the state and nationally. Generally speaking the quality of the work produced is a credit to the department and to the city.

The organization appears to be cumbersome and unwieldy. General sanitation is handled by one division, housing and sanitation, but some general sanitation must also be carried on as a necessary part of several other divisions; housing is directed in the same division but housing in the form of rat-proofing is also carried on by the rodent control division. Food control measures are conducted by three divisions: meat, milk and fruit and vegetable inspection divisions, but food control measures are also enforced by the housing and sanitation division which inspects restaurants, grocery stores, delicatessens, bottling plants and so on. Water supplies are covered by both the housing and sanitation division and by the sanitary engineer who is attached to the division but does not report to its director. Sewerage and excreta disposal matters are similarly divided. School sanitation is handled by the housing and sanitation division, but plumbing within the schools is handled by the sanitary engineer. The instances are frequent. To complete the confusion, sanitation as carried on by the five divisions in the general and special fields, is under the general supervision of the lay executive assistant to the city health officer, as his deputy. The previous experience of this officer has been in the fields of quarantine and rodent control as exercised by these divisions; his present special interest is milk sanitation.

Despite confusion, inherent handicaps due to a lack of trained personnel, low salaries, insufficient personnel and at times a lack of direct support from the administrative office, the divisions have accomplished a remarkable amount of work. Much of it has come about by cut-and-try and back-and-fill methods, but nevertheless the work has been accomplished eventually in some manner, and frequently well-done. Each division is undermanned to the extent that districts now covered by each inspector are too large to be adequately covered in following up complaints and permits alone. In case of resignation, illness or death there are no emergency or reserve personnel to take over the duties of the district and the work in the area must be done by already overloaded members of the staff or neglected completely. There is no emergency staff for urgent calls. No time is available for educational effort on the part of the inspector with the public.

An inspection of a new establishment will consist largely of a quick once-over, noting any deficiencies followed by the issuance of

notices for changes or improvements as necessary, and ending with the all too important statement that the permit fee will be so much. Between the necessarily quick inspection, which too often can not be as thorough as it should be, and the permit fees, the owner or operator of the establishment gains the impression that health inspection work is for the sole purpose of raising revenue; and in certain instances, that impression is well-founded. For instance, a modern apartment building in a good location, but according to the requirements of the State Housing Act and the city building ordinances must secure a permit annually from the health department for \$6. An initial inspection reveals every regulation has been met; the building, appurtenances and equipment are thoroughly modern; to keep the apartments rented, the building is maintained in first-class condition; yet the apartment must pay annually a permit fee for which it receives no useful service. Nor can it obtain from the health department for the fee assessed an adequate, thorough inspection of the building and all its facilities.

The time of inspectors and the division of their duties does not permit the most efficient use of available personnel. Again citing an instance, a general market may be visited by a fruit and vegetable inspector to note the physical condition of produce offered for sale; by a meat inspector to observe meats and meat products offered for sale and whether or not they are being kept under cover; by a housing and sanitation inspector to note the grocery and delicatessen departments, cafe, or bakery; by a milk inspector to pick up samples for the laboratory or to test refrigerator temperatures (apparently not checked by any of the others); by the sanitary engineer to check the plumbing; by a special inspector to pick up a water sample and by a representative of the rodent control division to check on rat harborage, all within a few hours or even at the same time.

The size of the district assigned to any one inspector should be based on the population and type of construction within the area. The program followed in the housing and sanitation division of assigning inspectors to definite subdistricts on specific days make for a rigidity in the program which does not permit the best use of his time. Principal reasons for the system are that the department knows where each inspector is each day and also permits him to make a general inspection or survey of the subdistrict if complaints, applications and reinspections are insufficient to require a complete day's schedule; against this are the requirements that each inspector report to the central office each morning and telephone in each early afternoon. Their whereabouts is known. Further, a freedom of action within his district will permit each inspector to utilize his time to best advantage and smooth out the peaks of required inspections. The districts should be smaller rather than increased in size to permit not only more time to be spent on each necessary inspection but also time for educating the owner or operator of the need for and advantages of the inspection. Further time should be made available for an adequate survey of his entire district periodically. Aside from all this, provision for in-service training of all inspectors should be made immediately, on the department's time and to the department's advantage. Important Saturday afternoon and Sunday inspections for markets, beaches and recreational areas is extremely limited due to lack of personnel.

A specific review of divisions is being purposely avoided as it is believed that the interests of the department may best be served by consideration of a plan for reorganization and with it a definite plan of activities. Much of the housing inspection work is mandatory on the department but at the same time much of it has little or no bearing on the public health. It is no concern of the department whether or not a kitchen has a back entry or opens into the living room although the safety of the occupants may be concerned. In any case the number of housing inspections each year is gradually decreasing. The total accomplishments for the year of the housing and sanitation division is gradually declining although the personnel number has stayed virtually stationary over a period of years. Miscellaneous inspections and surveys (whatever they entail) show some increase year to year. The notices served show a slow decline whether from actual improvement of conditions or for other reasons, such as a lack of legal backing or administrative approval, it was not possible to determine. The work on beverages and investigations of food-poisoning outbreaks has shown a steady increase. The work of the rodent control division, excluding the work done through the temporary assistance made available by WPA, has varied somewhat from year to year, but has in general remained stationary. The work of the meat division has grown steadily since 1933-34. The work of the fruit and vegetable division has varied considerably as regards individual units inspected and types of businesses, but based on condemnations the accomplishment has been relatively steady.

In general the personnel engaged in sanitary control measures is inadequate in number, in numbers with adequate prior education and training, and in general qualifications. A few exceptional men, entering under the same standards, have raised the general level of accomplishment. No reason can be seen for different entrance requirements and salaries for the inspectors of the various divisions. It is believed that the department would be better served if the general standards for entry were uniform and adhered to, if the salary rate were the same and if assignments were made according to individual ability. An inspector, assigned to meat inspection at present, might prove to be better adapted at rat-proofing inspection. The salary scale for entry appears to be high enough, considering the educational qualifications required. A base of \$150 per month entry with rigid adherence to a minimum of high school education plus a minimum of satisfactory experience in public health work might attract a higher type of applicant, better able to cope with modern inspection requirements. The quick automatic raises for two years to full pay is to be deplored in that the raises are considered as a right and a prerogative and are not based on the demonstrated efficiency and application of the employee. It is suggested that a system of gradual increases be employed, worked out with the assistance of the Civil Service Commission, whereby a small automatic percentage increase can be granted for productivity and efficiency every few years, say 5 per cent every three years, until a maximum of 50 per cent over the entry base pay is reached in thirty years. Such increases, however, should be subject to the recommendation of the immediate supervisor and the head of the division, such recommendation to be based on the application of the

employee to his work, his general fitness and his service record; it may be found advisable to inaugurate a system of annual rated efficiency reports to establish relative priority of eligibility to salary raises. Such a system will tend to attract and hold better qualified employees and will also serve to maintain the interest of the employee and increase his efficiency if something to work for, personally, is given him. Such salary raises should also apply to clerical and all other personnel within the department.

The need of sufficient clerical personnel in all divisions is acute. Inspection work is actually held up because inspectors must be detailed to desk work when they should be out on their regular duties. Reports, boiled down now to a point of being almost meaningless, should be amplified to give some better idea of the program and its accomplishments. There is considerable information available in the department which should be assembled and analyzed and put to practical administrative use, but which is buried because the directors and supervisory personnel do not have the time or clerical assistance to devote to its study. The Los Angeles City Health Department has done considerable original work but very little of it has been properly assembled and reported.

Transportation of employees offers a serious problem for those requiring automobile transportation. Such employees who can adequately cover the districts or areas assigned to them by the use of street cars or buses should continue to do so. But those who must cover large areas or distant points and can do so more advantageously to the department by the use of an automobile, should either be furnished with the use of city cars or be adequately reimbursed for the authorized use of personal cars. There is no defense for the continued provision of insufficient funds in the budget for this purpose. Failure to secure adequate reimbursement for mileage results either in a diminution of necessary travel to the detriment of the work or else constitutes an expense that must be paid by the inspector himself out of the small salary he receives for his services. This report does not and will not attempt to adjudicate the conflicting opinions relative to the use of city-owned or personally-owned cars, both of which are used for official travel by the city health department. Each practice presents both advantages and disadvantages; the city health department is better able to decide which system of automobile operation is best suited to its needs.

The question of imposing fees for health department permits has been discussed elsewhere in this report. The levy for revenue purposes of permit fees is questioned on the grounds that they constitute in effect a duplication of fees for license to do business for such establishments as come within the jurisdiction of the city health department. These businesses are already required to pay license fees and this should include any necessary services rendered by the health department. These license fees paid in proportion to the magnitude of the business, have a fairer basis than do the permit fees. Further, the public derives the direct benefits of health department inspection services instead of the businesses, and therefore public funds should pay the cost of such services. The collection of permit fees, even without the penalties imposed for delinquent licenses, has become a burden on the city health

department whose personnel can not now adequately render complete public health inspection services.

Because of the relatively few employees in each, the health district offices at San Pedro, Venice and Van Nuys are actually functioning better in general sanitation inspection work than the central office. In the first place the supervisor in charge personally directs the work in his district. He is subject to the limitations that the inspector assigned from a particular inspection division is required to look after the work in his particular field first and also to the provision that housing and sanitation inspectors are required to be in fixed areas each inspection day. But, with the exception of meat inspection inspectors, the inspectors can and are utilized to better departmental advantage being assigned to perform other duties along their route whenever their primary duties permit. Lack of clerical assistance at Van Nuys was remedied before the close of the survey and a similar deficiency at Venice is scheduled to be remedied at a later date. The system carried out in the outlying districts has been successful enough to merit consideration of its extension to areas closer in.

In the specialized fields, it is immediately noticeable that replacements are not available and that often sufficient personnel is not assigned to permit adequate study of new fields of potential activity. One man alone handles beverages and bottled waters; another alone collects water samples from swimming pools and private supplies and undertakes necessary inspection work in connection with them. Food poisoning investigations are independently handled entirely by one inspector of the inspection service whereas such activities should be under the supervision of the epidemiologist. Success in tracing the sources and causes of outbreaks of food poisoning has been due entirely to the interest, persistence and practical education through experience, of the inspector assigned to this detail. The sanitary engineer of the department operates independently and pretty much as a free lance without any definition or coordination of his duties. His activities are largely the result of his own thinking and his own efforts, but he has been handicapped by lack of assistance or a definite program, properly budgeted. His primary interest lies in the field of back-siphonage, an interest shared by the sanitary engineering division of the city bureau of water works and supply and the plumbing division of the city department of building and safety. His chief support and cooperation secured in this work has been outside the health department. Other main interests of the sanitary engineer include supervision of swimming pools and private water supplies and an argument of long-standing with the city department of water and power over respective responsibility of the two departments as regards the sanitary control of the city's public water supply.

The fruit and vegetable division is concerned more with the elimination of immature or overripe and spoiled fruits, nuts and vegetables and condemns those which do not meet federal or state marketing standards. Insecticidal spray-residue control is secured almost entirely by the State Department of Agriculture. Much of the inspection work of this division is done at the three largest wholesale markets, but inspection service is also carried into retail markets, the Grand Central Market utilizing the services of one inspector four hours a day and

more time there under the existing system could well be utilized. There does not appear to be any reason why retail inspection of fruits and vegetables can not be confined to proper protection against dust, flies and handling and be carried out by general sanitation inspectors. Cannery inspection involves a triple activity, the State Department of Industrial Relations being concerned with safety, the State Department of Public Health as regards inspection of raw and finished products, particularly in tomato canneries and the city health department for cleanliness and general sanitation; preserving plants and cold-storage plants also come under this department's supervision.

The division of meat inspection only engages in inspection of poultry and rabbit slaughterhouses; all others are under either federal or state supervision. The staff of this division prior to 1933 engaged in this activity and with additional personnel could resume it if necessary. The development and expansion of meat-processing has required more attention than the division is now able to give to it. Poultry and rabbit slaughterhouses are inspected by the division; Los Angeles is one of the few cities attempting to exercise control over the marketing of both poultry and rabbits. Central stations for inspection, quarantine and slaughter are not provided but are necessary. Fish also have been inspected by this division but a fish-cannery inspector is no longer available, nor needed. Markets where meats, meat products, poultry, rabbits and fish are sold wholesale or retail are inspected by the division. Retail inspection is largely for spoilage and sanitation and could be handled by the general sanitation inspectors with some training and supervision from the division. The detection of adulteration of meats and meat products requires some special training and suspected materials are always tested in the public health laboratory.

After due consideration of the sanitary control activities of the department during the survey and later during the assembling of data and the writing of the report, it becomes apparent that a complete reorganization of the various activities is badly needed. While it is very true that the activities of the city health department have been impeded by the lack of increase in personnel to meet the demands of an increasing population and a phenomenally growing city, it is also true that with some study a rearrangement of activities with the expansion of those having the most public health significance and the curtailment at least until more adequate funds become available, of the activities having lesser public health significance, coupled with redistribution of duties and available personnel will permit a larger output in the more important activities having major public health importance with no immediate large increase in personnel.

First, it would appear advisable to divide all service activities of the city health department into two general divisions, medical services and sanitation services. The sanitation division should be headed by an outstanding and experienced public health or a sanitary engineer with sound public health training and administrative experience, who has had not less than ten years experience in public health engineering, a part of which should preferably have been with a large city or a well organized state or county health department. In the selection of such a chief sanitary or public health engineer, consideration should be given to such engineers as have graduated from recognized schools

having strong public health courses. Preferably the engineer selected should not be older than 45; however, it is more important to have an employee with necessary, basic public health education, training and experience who is intelligent, able and possesses the faculty of meeting and getting along with the public and the professional groups. A proper entrance salary for the right kind of man should be about \$6,000 per annum.

Under the chief sanitary engineer who should be given considerable latitude in organizing the activities may best be divided into three major subdivisions: food, environment and miscellaneous services. The heads of these three subdivisions should receive a salary of \$4,000-\$4,500 per annum.

Within the subdivision for food control should be placed the several services as follows: milk inspection (dairies, depots, and pasteurizing and ice cream plants), meat inspection, fruit and vegetable inspection (wholesale only), food handling establishments (including beverages) which would include all establishments for the handling and vending of foods and also special assignments such as beverages, preserving plants and canneries and others as may be required. Food poisoning investigations should be transferred to the division of epidemiology. The heads of the various sections should receive an entrance salary of \$3,600-\$4,000 per annum. Supervising inspectors should receive \$2,400-\$2,700 per annum.

Under the new environment division should be a section under the direction of a sanitary engineer competent in this class of work in which would be handled the supervision of swimming pools and recreational areas, public water supplies (other than the municipal supply), back-siphonage and cross-connections in relation to the public water supplies, private water supplies, and private sewer and other excreta disposal systems. The engineer in charge of this section should also serve as assistant director for the sanitation division. He also should be given sufficient assistants to adequately carry on his functions. In another section would be grouped all housing and plumbing (excepting back-siphonage and cross-connections) activities including those required by law and those required for public health reasons; also included would be the rat-proofing activities now handled under the rodent control division. Another section would handle dog and rodent control which would include ship and cargo inspections and rat-guard enforcement in the harbor area (best handled under the immediate supervision of the San Pedro district officer as the work is peculiarly local to that area). District sanitary control should be under the general supervision of the division chief. The districts should carry on all activities as at present, and be placed under the immediate direction of a chief supervisor in the office of the chief sanitary engineer, who would coordinate their activities with those of the various sections. The various section heads should receive an entrance salary of \$3,600-\$4,000 per annum. The supervising inspectors should receive \$2,400-\$2,700 per annum.

In closing the summary, in addition to discussion of the reorganization of the activities relating to sanitation services, it is felt desirable to discuss further the proper training of employees within the department in modern practices. It is not sufficient to employ an inspector,

show him his duties and then depend upon his education and training (both usually limited) and his native abilities to produce results necessary for effective administration of health department responsibilities.

Attendance of employees at the Institute of Government held annually by the University of Southern California is encouraged by the city government and by the city health department. However, the modest fees for attendance must be borne by the employee. Participation in discussions and by presentation of papers is urged. But the Institute alone is not sufficient. It covers a variety of activities in government and the few papers presented with respect to public health administration are not in sufficient scope to give the average inspector enough to think about. Attendance at state public health meetings where matters relating to public health are discussed is approved, but financial limitations prevent all but a few from attending as those who attend must do so at their own expense and is limited to those who can afford it. Attendance at national meetings by any employee from the city health officer on down is practically negligible. These meetings and conventions provide an excellent medium for the exchange of ideas and for stimulating contacts in the various fields of public health. The papers presented can perhaps be best read at leisure afterward, but nothing can supply the stimulation of interest that attendance provides.

Training at schools of public health, both short courses and full academic years, now available through federal social security grants-in-aid, should be provided but only for those who have basic education sufficient to understand and absorb the courses given at these schools; otherwise both time and money are wasted. However, where the individual employee can and does derive material benefit from such training courses, the other employees share it and the city health department benefits in turn. At this point it may be stressed that benefits secured from training courses or conventions should be made available to all other employees where the health department incurred the expense of providing the attendance.

The most important service that the department can render, to the inspector and to itself, is to provide courses of in-service training within the department; not the monthly department meetings where general programs are presented for it is also essential for the meat inspector to know what the rodent control man does and for the housing specialist to know something of fruit and vegetable inspection; nor the weekly staff meetings which should be for administrative heads, but specialized fields of group instruction are essential. Lectures accompanied by pictures by experts brought in for the purpose and demonstrations followed by field trips are useful.

Each new inspector should in general be assigned to different activities long enough to become familiar with them. In the end the training would be broad enough so that any inspector ultimately assigned to say food control, would be familiar with all inspection work except that requiring special education and training, and should be able, after such proper training, to handle in emergency any routine inspections relating to meats, fruits, vegetables, sterilization of glassware, bakery sanitation and similar duties.

Cooperation within the department and with state and federal agencies is generally good. Cooperative arrangements between other city departments and the city health department have been well estab-

lished except for the few instances hereafter mentioned. Close cooperative relations exist with surrounding municipalities and counties as evidenced by unquestioned acceptance of each other's inspections, recommendations and permits. Cooperation with the Los Angeles County Health Department was variously reported as good, bad and indifferent; the county health department was not visited nor have any of its records or reports been reviewed in connection with this portion of the survey. It does appear, however, that some overlapping of functions does exist and it is also apparent that there is a variation between certain standards acceptable to either department. The conclusion is reached that the extent and quality of cooperation between the county and city health departments is dependent upon individual personal relations between employees in the two departments and not upon the relations existing between the county health officer and the city health officer, nor upon any effective policies of cooperation adopted by each department. One instance of noncooperation may be cited; two county inspectors watched the loading of sick poultry in trucks, followed the trucks to the city and then informed the meat inspection division where they were, resulting in the immediate detail of a city inspector to investigate and act. However, the county inspectors may have lacked authority to act. The aftermath of this story is that the chickens were destined for another part of the county. On the other hand the closest of cooperation has been shown in joint inspections between county and city inspectors in adjoining closely built-up areas. The interests of the city and the county require a proper division and coordination of duties and close cooperative activity between the two departments to prevent overlapping and to give effect to full acceptance of responsibilities. No criticism of the county health department is to be construed from this review as its activities were not within the purview of this survey and no first-hand information regarding county health department activities was secured.

All matters pertaining to the collection and disposal of sewage and industrial wastes come under the jurisdiction of the city engineer in the department of public works. Individual excreta disposal, whether by privy, cesspool or septic tanks, is the joint concern of the city health department and the department of building and safety. There are no apparent differences of opinion between these two agencies. Certain areas within the city are faced with serious problems of excreta disposal due to the high water table and the absence of sewers; fortunately the affected areas are not as yet extensive. As many of these areas lie within the San Fernando Valley which is held and used as a large underground storage basin by the city water department, drainage to relieve these areas can not be accomplished and a sewerage system is too expensive for these scattered houses and areas. The solution is not in sight. It would appear that these areas might be zoned and dwellings not permitted until such times as sewers become available. The current rapid development within the valley of small homes and business centers may result in sewerage becoming available in the near future. Disposal of municipal sewage is through the screening plant at Hyperion with discharge into the ocean or, for the harbor area through the Terminal Island separate-sludge digestion plant with discharge into the outer harbor. A small portion of municipal sewage

enters the county system. Studies are now under way in regard of providing more complete treatment of the sewage at Hyperion.

Refuse collection and disposal also are functions of the city engineer. Garbage, noncombustible rubbish and combustible rubbish are required to be separated on the premises, and the first two are collected by the city or a contractor at no cost to the householder. Combustible rubbish is picked up by licensed collectors for a small charge. Garbage is sold by the city to hog ranches, the greater part going to the Fontana farms which feeds in excess of 50,000 hogs. Hog ranches are not much of a sanitary problem within the city, there being but one housing about 2,000 hogs. It is not satisfactorily maintained. Noncombustible rubbish is hauled to a contractor who sorts and salvages waste materials. Combustible rubbish is burned at designated places, principally at the city incinerator.

The cooperation between city health department and the department of water and power appears to reach low ebb during emergencies when the water supply may or may not be affected. It is certain that the city health officer is faced with a moral and a broad general legal responsibility to the public for the protection of its health from pollution or contamination of the public water supply, but under charter, the specific legal responsibility apparently rests with the water department. Because of these two relationships with the public, the two departments have frequently appeared on the opposite sides of the same question and conflicting reports and advice have been issued. Publicity appears to have been a principal stumbling block. It is suggested that, to avoid conflicting simultaneous stories in local newspapers on any occasion when an emergency threatens the public water supply, the boards of commissioners for both departments submit statements to each other for record, information and correction before release to the public, or submit them for release through a third agency such as the Major Disaster Emergency Council. The differences of opinion can readily be ironed out if the water department will furnish to the health officer a complete record of control measures including copies of laboratory examinations and if the health officer in turn will accept this information in full faith and with complete confidence in the water department. In fact, the departments are actually not far apart in their laboratory findings or in their field surveys. The record of low incidence of water-borne disease following emergencies created by earthquakes, earth slides and floods is an indication of adequate and satisfactory control measures by both agencies.

The municipal water supply of the city covers 350 of the 450 square miles of city area and serves approximately 90 per cent of the population. It is controlled in its entirety from source to consumer by the Bureau of Water Works and Supply of the Department of Water and Power. The greater part of the water comes from the Owens River in the high Sierra Nevada Mountains to be supplemented through the construction of the Mono Crater tunnel by streams now feeding Mono Lake. The water is brought into the city by a series of open and closed conduits, lined and unlined, and tunnels and discharges into open reservoirs in the upper San Fernando Valley. From there the water is distributed to a series of open reservoirs serving different sections of the city and also to a number of small covered reservoirs and tanks. Surface drainage is not permitted to enter the

lower reservoirs. Sanitary control is well organized and well maintained. Chlorine and ammonia are used for sterilization during the rainy winter season up until samples test colon-free for thirty days. When the turbidity of the effluent from the San Fernando reservoirs exceeds 20 p.p.m. the reservoirs are by-passed. This by-pass has a capacity of but one-fourth the regular conduit but high turbidities occur usually in winter seasons which are also rainy seasons and therefore water for irrigation is not needed. Storage plus other available supplies plus the by-pass capacity are ample for even extraordinary needs. Algae control in the open reservoirs is practiced whenever necessary. Laboratory control including bacteriological, mineral, sanitary, chemical and biological, is maintained by an exceptionally well-equipped and ably-staffed laboratory.

One of the chief contentions between the water department and the health department has been the question of complete purification, recommended by the health department but not considered necessary by the water department. This latter agency appears to be doing all that it considers necessary to provide an adequate supply of pure, potable water of a quality meeting treasury department standards for drinking and culinary waters used in interstate traffic. If complete purification becomes necessary, the water department will install it, but its decision will be reached from results of its own researches and control measures. A census of municipal water purification plants in the United States compiled by the American Water Works Association in 1931 lists the following large cities as being without any purification, other than chlorination, utilizing as sources of supply surface waters such as lakes or streams: New Haven, Conn.; Chicago, Ill.; Jersey City, N. J.; Newark, N. J.; New York City, N. Y.; Rochester, N. Y.; Scranton, Pa.; Wilkes-Barre, Pa., and Milwaukee, Wis. The number of large city water supplies which do not provide filtration is somewhat larger.

Other sources of supply for the municipal water system are infiltration galleries and shallow wells in and adjacent to the Los Angeles River and other deep wells scattered over the city. The supply derived from the Los Angeles River is constantly chlorinated; the river water is by-passed to waste as soon as turbidity is observed; it represents about 20-25 per cent of the water used for culinary and drinking purposes. The potential hazards surrounding the river supply are considerable whereas the aqueduct supply is one of the best in the country. It is unfortunate that it is deemed necessary to use it, at least as a regular and constant source of supply; at any rate it needs further safeguarding which is now about to be done.

A future source of supply is the Colorado River through the system now under development to supply water to the Metropolitan Water District. This supply which will be treated, will be used in emergency only, as the city has made available for itself a supply through the Owens River aqueduct which is ample for several years with considerable growth in the city's population.

The question of back-siphonage has also been the cause of intermittent friction between the city health department and the water department with a third interested agency, the plumbing division of the building and safety department, a bystander either unable or unwilling

to endeavor to arbitrate the existing differences. The health department apparently has been unwilling to accept the assistance or outside activity in this field without health department supervision, considering such as trespass upon the prerogatives of the health department. The water department, impatient at health department delay and inability to pursue this activity more vigorously, has undertaken to make inspections of their own, utilizing the authority of the health department under city ordinances for entry on private premises. It is felt that the hazard of back-siphonage increasingly is more potential than actual, but the water department properly feels obligated to insure the delivery of pure and potable water to all consumers at all times. The plumbing division maintains a laboratory for testing the plumbing devices and fixtures involved which is utilized by the water department. A method of cooperation relative to this activity may readily be reached: the health officer could deputize water department inspectors as deputy inspectors of the health department which would clothe them with authority for entry into private premises or the city health officer can assign health department inspectors to follow up recalcitrant offenders who refuse entry to other inspectors. Further, recommendation of the water department for abatement or correction should be submitted to the health officer and he should accept the recommendations at their face value and issue orders for abatement or correction. Lastly, all three interested departments should be represented at all tests of devices and fixtures presenting actual or potential health hazards and recommendations relating thereto, should be joined in by all the departments participating.

It is desired to acknowledge the assistance rendered in this portion of the survey from all employees of the city health department, from the health officer down to the inspectors. Available information was freely given and any existing records were made obtainable at all times. At no time was the impression received that the department was covering up or that information was being deliberately withheld. This cooperative spirit was evident even though the health department was undergoing another investigation of a different type at the time of this survey.

Acknowledgment is also made of the courtesies given during the survey by other city departments and agencies who also made available information desired to assist in the survey. Annual reports of these other departments have been freely consulted and quoted and some of the material available used in this respect. Outside assistance is also gratefully acknowledged, particularly that of the Fontana Farms Company, which made it possible to inspect one of the largest hog farms in the country utilizing raw or green garbage for food.

Recommendations

1. Reorganize the existing divisions in the city health department which render sanitation services into one large division of sanitation under the direction of a chief sanitary engineer, who has superior education, training and years of experience in public health and public health administration.

2. Establish three major subdivisions of activity: food control, environment and miscellaneous sanitation.

3. Provide adequate quarters, properly equipped, lighted and ventilated, for the reception of the public and use of employees in all offices of the department.

4. Raise the qualifications for entry into inspection service to the minimum of high school graduation, plus five years experience in fields related to public health or equivalent special or technical education.

5. Employ selected personnel for key positions who are graduates of suitable formal public health courses or who have a college degree specializing in allied courses such as dairy industry, animal industry, horticulture, pharmacology, and so on.

6. Establish a basic entrance salary for all general inspectors and for inspectors who are specialists at \$1,800-\$2,100 per annum, and establish a system of biennial or triennial pay increases each amounting to 5 per cent of entrance salary with a maximum not exceeding 50 per cent additional, attainable in 20-30 years. The eligibility to such pay raises should be based strictly on merit and efficiency and should apply to supervisory and clerical as well as inspectors and technical employees.

7. Provide adequate transportation and/or mileage reimbursement by the budgeting of sufficient funds.

8. Eliminate all nonpublic health activities of the city health department, amending existing laws and ordinances where necessary and curtail activities of lesser public health importance until more adequate funds are available.

9. Prepare or assist in the preparation of a new health section of the municipal code to eliminate or correct sections practically voided by permissive clauses or actually voided through other circumstances and to include sections now enforced separately under old or new ordinances; the sections of the municipal code now granting joint or conflicting authority to the city health department and other city departments should be clarified and reconciled; prepare and issue, preferably in loose-leaf form, a comprehensive manual of sanitation services for the guidance of inspectors and other employees.

10. Expand the health district offices both in number and in size; modify the rigid system of districting used in the present housing and sanitation division to permit a more flexible and efficient use of time of inspectors; decrease the size of existing subdistricts for inspectors and increase the inspection staff sufficiently to provide subdistricts of a size which can be adequately covered and to provide a much-needed staff for special details, necessary relief for sickness, annual leave and emergencies.

11. Employ sufficient clerical personnel to provide more detailed reports of activities to analyze valuable information secured in previous years and to relieve inspectors of clerical and desk duties for the performance of their inspection services; issue periodic reports giving more detail of the activities covered during the year; less quantity and more quality of work is suggested.

12. Undertake immediately a specialized program of in-service training for various groups of personnel, on the time and at the expense of the department.

13. Transfer to the proposed new medical division of preventable disease, all investigations of "food-poisoning" outbreaks.

14. Until more complete information is secured concerning the incidence and transmission of trichinosis, the current recommendations

of the U. S. Public Health Service relative to the control of this disease should be followed. They are, in order of preference:

1. Prohibit the feeding of raw or green garbage to hogs, at farms or elsewhere.
2. Require all garbage to be thoroughly cooked or processed before feeding.
3. Require the processing of all pork and pork products in accordance with the requirements of the Bureau of Animal Industry, U. S. Department of Agriculture.

In this connection, immediate consideration should be given to requiring separate garbage containers for all raw meat discarded, collection of the same and cooking it, prior to disposal.

15. Eliminate the fee system for permits, except possibly for special details requiring full-time inspectors. If fee system be retained, modify city ordinances relating to permit fees so as to provide penalties for delinquency; eliminate collection of fees and investigation of delinquent permits by inspection staff; employ bonded clerks at central district and offices to collect all imposed fees.

16. Eliminate as far as possible all overlapping activities by cooperative effort with other city and county departments. Establish complete cooperation with all agencies and departments now engaged directly or indirectly in public health activity; the city health department should enter with the department of water and power into an agreement covering policies relating to the protection of the municipal water supply, of back-siphonage investigations, of reporting and accepting mutually the results of all investigations, of laboratory service now overlapping; enter with the department of water and power and the department of building and safety into the joint testing of all fixtures and devices which may create cross-connections or cause back-siphonage.

INDUSTRIAL HYGIENE IN THE CITY OF LOS ANGELES

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U. S. Public Health Service

Although the city health department heretofore has not engaged in industrial hygiene activities to any appreciable extent, it was felt that a discussion of the need of such a specific service should be included in the survey being made by the U. S. Public Health Service of the functions and accomplishments of the city health department, particularly in view of the ranking of Los Angeles as the fifth largest industrial county in the United States in terms of the dollar value of the products manufactured.

Prior to June, 1939, industrial hygiene activities of the city health department in the city of Los Angeles were indeed limited. Save what the department did for the worker through its general public health program, its industrial hygiene activities were confined to minor investigations occasionally carried out by the sanitary engineer. These dealt primarily with atmospheric smoke pollution problems, safety service and industrial nuisances which activities are covered elsewhere in the report in the sections on sanitation. On June 12, 1939, Doctor A. V. Nasatir (M.D., C. P. H.) was appointed director of a new division of industrial hygiene established in the city health department with the aid of the State Department of Public Health and federal social security grants-in-aid allocated by its director. At the time this survey was in progress Doctor Nasatir had only had time to formulate a program for the proposed activities of the division in which the suggestions previously outlined by the U. S. Public Health Service were incorporated.

In view of the circumstances, no direct appraisal was made of the meager industrial hygiene activities in the Los Angeles City Health Department and the present survey concerned itself with a consideration of the work being done in this field by other official agencies and of the work being done by industry itself, and how best the new division of industrial hygiene in the city health department and these official and nonofficial agencies could be coordinated for the development of complete service in this important field of public health.

During the last few years the scope of industrial hygiene has expanded considerably, from the control of accidents to the prevention of occupational diseases among industrial workers; and finally, to the promotion and conservation of health of all gainfully employed persons.* In view of this more extensive approach to industrial hygiene problems, it is evident that an industrial hygiene survey today must be more than an appraisal of the activities of any one agency. In fact, it must deal with the functions of all the agencies interested in, and responsible for, the protection of the health of workers.

* Bloomfield, J. J., Development of Industrial Hygiene in the United States. *American Journal of Public Health*, Vol. 28, December, 1938.

Perhaps the agency most concerned with the problem of industrial health is industry itself. Any corrective measures which are installed in industry are accomplished by private effort and private funds. The important task for the industrial hygiene administration is to persuade industry to solve its own health problems. The official agency mainly aids industry to evaluate its problems, suggests ways and means for their control, develops standards of good practice, furnishes technical guidance and conducts educational programs. For this reason, any survey of industrial hygiene made in a community must necessarily take into consideration the work being done by industry itself.

This report presents factual information on state legislation bearing on the problem of industrial hygiene, the functions of the various state departments in this field, an analysis of cases of occupational diseases reported during the past year from the city of Los Angeles, and an appraisal of the present health services and potential health problems in a sample comprising 209 representative industrial establishments in the city. In other words, certain information was collected for the purpose of defining the problem in industrial hygiene in the city of Los Angeles and of determining what steps should be taken in coping with this problem.

The Industrial Hygiene Problem in Los Angeles

Before planning a service in industrial hygiene, or for that matter in any other phase of public health, it is first essential to determine whether or not such a service is needed and, if so, what form it should take. Such a decision may only be reached from a determination of the extent of the problem as it exists. In the field of industrial hygiene several methods may be employed in defining the problem of industrial health. The nature and prevalence of industrial health hazards in a locality may be established either by detailed study of the health of workers or by an analysis of the morbidity and mortality statistics of industrial workers. In order to fulfill the first procedure it is necessary to make an extensive study of the health and make physical examinations of workers themselves in various industries, which in turn requires a considerable number of personnel and a fair sized budget. The second consideration is difficult to fulfill, in view of the paucity of specific industrial morbidity and mortality data. For these reasons, when industrial hygiene began to be administered extensively in the various states, the U. S. Public Health Service suggested that some idea of the problems in a locality could be obtained by conducting a preliminary survey. Since 1936 approximately 20 states have conducted such surveys and have found them extremely useful in forming a basis for a permanent program in industrial hygiene. We will not take the time to discuss the plan of such surveys or the various principles involved, since all this has been done in detail in Public Health Bulletin No. 236,* and in numerous other publications from the various states. A summary of the results of such surveys in 15 states will soon be published. Suffice it to say here that these surveys concern themselves with recording the number of persons, by occupation, who are exposed to various materials and conditions which may be hazardous

* Bloomfield, J. J., and Peyton, M. F., Evaluation of the Industrial Hygiene Problems of a State. Public Health Bulletin No. 236, Government Printing Office, Washington, D. C., 1937.

to health, and also certain other information on the subject of existing health services for the workers in the industrial environment. In addition, data are obtained on any control measures in use to combat some of the hazardous exposures. These surveys were done under the guidance of the U. S. Public Health Service personnel and employed the various forms and methods suggested by the service. Such a survey was started in California early in 1937, and is still in progress. In California, those responsible for the administration of industrial hygiene have divided the state for survey purposes into six convenient districts, such as the Oakland Bay district, the Los Angeles district, the Fresno district, and so on. When the present survey in Los Angeles was undertaken, arrangements were made with the State Industrial Hygiene Service to obtain information which they had recently gathered in the Los Angeles district, where the survey had already been completed. A study of these data showed that 209 plant surveys had been completed and that these were a quite representative and adequate sample and suitable for our present purpose.

The results of the study, which follow, concern themselves chiefly with the qualitative conditions of environment. Since the data were obtained by visual methods and by interviews, no definite conclusions can be drawn as to the quantitative degree of the various existing hazards to health. For the same reason, the data can not be accepted as demonstrating that the conditions now in existence are unhealthful but they do show the potentialities of the situation and give the industrial hygiene administrator some idea of the local problems in this field of public health. Furthermore, experience has shown that even potentially hazardous conditions, when not attended to, at times become causes of ill health.

Scope and Plan of the Survey

The procedure in Los Angeles was the same as that followed in other cities and states, namely, the study of a representative and adequate number of plants in the various principal industries in the locality. It would require too great an expenditure of effort and money to survey every single establishment and, furthermore, experience has shown that this is not necessary for obtaining a reasonable idea of the extent of the problem in industrial hygiene. A discussion of the sampling procedure and the forms used in the survey has been presented elsewhere.*

It will be seen from Table 1 that only certain industries were selected for study. These industries are the manufacturing and mechanical, transportation, and personal service groups. It is realized, of course, that there are problems of industrial health among workers in other fields of endeavor, such as agriculture, public service, and so on. However, experience has also shown that the workers in the industries selected are the ones experiencing the major occupational diseases and, in view of the limited time available for the conduct of such studies, it has been the practice to confine the primary work to the industries shown in Table 1.

* Bloomfield, J. J., and Peyton, M. F., *Evaluation of the Industrial Hygiene Problems of a State*. Public Health Bulletin No. 236, Government Printing Office, Washington, D. C., 1937.

The 1930 census of the United States* shows that of the 2,500,969 gainfully employed persons in California, 580,786, or 23.2 per cent, were found in the city of Los Angeles. The census also shows that in Los Angeles there were 126,279 workers in the industries listed in Table 1. Of this number, our present surveys included 20,972, or approximately 17 per cent of the total number of workers in these industries. The largest sample was obtained in the food and allied industries, representing 32.8 per cent of the total number of workers in those industries, and the iron and steel plants contributed the next highest number of workers, representing 30.6 per cent of the total. As may be also seen from Table 1, the large group of manufacturing and mechanical industries contributed the bulk of the workers analyzed in the present report, namely, 19,779 of a total of 20,972. It is the manufacturing and mechanical industries which are known to offer the most problems in industrial hygiene.

TABLE 1

Number and Per Cent of Workers Surveyed in Each Industry Group

Selected Industry Group	Number of Workers		Per Cent Surveyed in Each Industry Group
	1930 Census	Survey Sample	
All selected industries-----	126,279	20,972	16.6
Manufacturing and mechanical-----	109,271	19,779	18.1
Chemical and allied-----	9,633	868	9.0
Clay, glass and stone-----	3,967	985	24.8
Clothing manufacture-----	13,464	839	6.2
Food and allied-----	14,036	4,603	32.8
Iron and steel-----	27,558	8,434	30.6
Lumber and furniture-----	7,741	623	8.0
Paper, printing and allied-----	10,534	1,022	9.7
Miscellaneous manufacturing * ---	22,338	2,405	10.8
Transportation—			
Auto repair shops, garages, etc.---	7,101	103	1.5
Personal service—			
Laundries, dying, cleaning-----	9,907	1,090	11.0

* Includes the following groups for which no analysis of census data is available: Metal industries, other than iron and steel; leather, textile manufacture.

Table 2 presents the number of plants and the number of workers surveyed by sex and by industry group. Of the 209 plants in this study, 186 were in the manufacturing and mechanical industries, 4 in the transportation group and 19 in the personal service category. The iron and steel industries contributed the largest number of plants, namely 45, with slightly more than 8,000 workers. Next in order was the food and allied group with 34 plants and 4,603 employees. Practically every type of industrial endeavor was covered in this survey, as evidenced by the data in Table 2. Of the 20,972 workers in this study, 4,947 were females, or 24 per cent. The bulk of the female workers was found in the food and allied industries, with personal services, such as laundries and dry cleaning establishments, also contributing a large share of female employees.

* U. S. Department of Commerce, Bureau of the Census; Fifteenth Census of the United States, 1930. Population V.III, Part I. Reports by States, Government Printing Office, Washington, D. C.

TABLE 2

Number of Plants and Number of Workers Surveyed, by Sex, and by Industry Group

Industry Group	Number of Plants	Number of Workers		
		Total	Male	Female
All industries surveyed.....	209	20,972	16,025	4,947
Manufacturing and mechanical industries.....	186	19,779	15,536	4,243
Chemical and allied.....	8	868	767	101
Paints and varnish.....	2	92	86	6
Petroleum refineries.....	1	439	439	--
Fertilizer plant; soap factory.....	2	199	180	19
Other chemicals: cosmetics; ink; chemicals.....	3	138	62	76
Clay, glass and stone.....	8	985	814	171
Brick, tile, terra cotta.....	2	370	267	103
Mirrors.....	2	136	134	2
Cement; marble and stone yards.....	2	145	145	--
Pottery.....	2	334	268	66
Clothing manufacture.....	11	839	195	644
Gloves.....	2	76	16	60
Shirts, collars, etc.....	3	241	34	207
Coats, suits, other clothing.....	6	522	145	377
Food and allied.....	34	4,603	2,331	2,272
Bakeries.....	7	714	469	245
Dairy products.....	4	311	284	27
Confectionery.....	5	412	129	283
Fish curing and packing.....	2	1,567	667	900
Flour and grain mills.....	2	145	141	4
Fruit and vegetable canning.....	3	918	268	650
Slaughter and packing.....	2	284	201	83
Other food—				
Jellies, syrups, pickles.....	3	96	61	35
Ice plant; coffee roasting; macaroni.....	3	111	68	43
Wine distilleries.....	3	45	43	2
Iron and steel industries.....	45	8,434	8,400	34
Automobile factories.....	7	1,375	1,363	12
Car and railroad shops.....	4	2,433	2,433	--
Ship and boat building.....	4	303	302	1
Other iron and steel—				
Foundries.....	8	606	606	--
Industrial machinery and equipment.....	14	955	952	3
Airplane parts; steel fabrication	3	2,465	2,447	18
Other.....	5	297	297	--
Metal industries except iron and steel.....	14	406	392	14
Brass and bronze products.....	3	50	50	--
Jewelry; lead and zinc.....	2	107	106	1
Aluminum products.....	5	172	159	13
Plating and enameling.....	4	77	77	--
Leather.....	8	585	387	198
Leather goods.....	2	27	16	11
Shoes.....	2	475	295	180
Harness and saddlery; tannery.....	2	53	52	1
Trunks and suitcases.....	2	30	24	6
Lumber and furniture.....	20	623	561	62
Furniture.....	8	188	172	16
Millwork.....	3	102	102	--
Boxes, baskets, barrels.....	5	137	135	2
Other woodwork—				
Novelties, venetian blinds, etc.....	4	196	152	44
Paper, printing and allied.....	13	1,022	883	139
Paper boxes; envelopes.....	5	249	142	107
Printing, engraving, publishing.....	8	773	741	32

TABLE 2—Continued
Number of Plants and Number of Workers Surveyed, by Sex and
by Industry Group—Continued

Industry Group	Number of Plants	Number of Workers		
		Total	Male	Female
Textile manufacture -----	11	728	253	475
Knit goods -----	3	512	180	332
Carpet mills -----	2	21	19	2
Tents and awnings -----	2	32	16	16
Linen; novelty yarns -----	2	130	18	121
Textile dyeing; mattresses -----	2	24	20	4
Miscellaneous manufacturing industries -----	14	686	553	133
Electrical equipment -----	5	455	394	61
Motion picture equipment -----	2	91	65	26
Buttons; pillows; flags -----	3	51	28	23
Brooms; waste material reclaiming -----	2	50	46	4
Other -----	2	39	20	19
Transportation -----	4	103	103	--
Auto repair shops, garages, etc. -----	4	103	103	--
Personal service -----	19	1,090	386	704
Laundries -----	12	870	257	613
Cleaning, dyeing -----	7	220	129	91

Table 3 presents the distribution of plants and workers by size in the manufacturing industries in the United States, in California and in the survey sample. In the United States 2.5 per cent of the plants in the manufacturing industries employ more than 500 persons. According to the census for the state of California, 2 per cent of the plants are of that size while in the survey sample for Los Angeles were included 2.7 per cent of the plants having more than 500 employees. This shows that the survey sample was indeed well selected, since in regard to large establishments, the percentage of plants in the survey is about the same order of magnitude as those in the United States as a whole; it may also be seen from Table 3 that the Los Angeles survey sample had a relatively smaller percentage of the so-called small establishments and a relatively larger percentage of plants in the 51 to 100 worker and 101 to 250 worker groups.

TABLE 3
Percentage Distribution of Plants and of Workers by Size of Plant in the
Manufacturing Industries in United States, California and Survey Sample ^a

Size of Plant (Number of Workers)	Per Cent of Total Number of Plants			Per Cent of Total Number of Workers		
	United States (Census)	California (Census)	Los Angeles (Survey)	United States (Census)	California (Census)	Los Angeles (Survey)
6 to 20 -----	49.6	58.1	29.6	7.0	12.2	3.5
21 to 50 -----	23.2	21.3	30.1	9.5	13.2	9.7
51 to 100 -----	11.6	9.8	15.0	10.4	13.6	9.9
101 to 250 -----	9.5	7.2	16.7	18.6	21.3	25.0
251 to 500 -----	3.6	2.1	5.9	15.5	14.1	20.6
501 to 1,000 -----	1.6	1.0	1.1	13.7	12.6	8.2
1,001 to 2,500 -----	.7	.5	1.6	13.4	13.0	23.1
2,501 and over -----	.2	---	---	11.9	---	---

^a Source of data for United States and California: U. S. Bureau of the Census, 1929 Manufacturing Series.

FIGURE 1
DISTRIBUTION OF WORKERS BY SIZE OF PLANT
(CUMULATIVE PERCENTAGE BASIS)

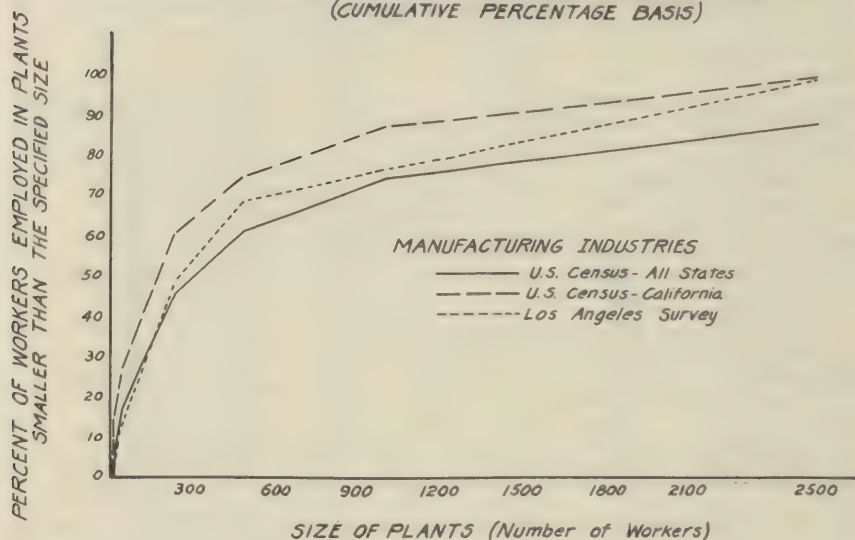
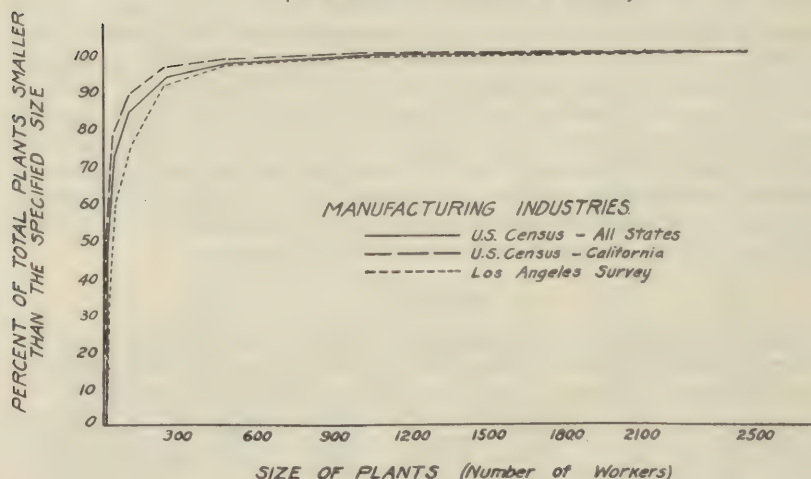


FIGURE 2
DISTRIBUTION OF PLANTS ACCORDING TO NUMBER OF WORKERS
(CUMULATIVE PERCENTAGE BASIS)



On the basis of the percentage of workers in plants of various sizes, the data for the United States indicated that 39 per cent of the workers in manufacturing industries in the United States are employed in plants having more than 500 workers. The corresponding figures for the State of California are 25.6 per cent, and for the Los Angeles survey sample, 31.3 per cent. Again it may be seen that in so far as the larger size plants are concerned, on a basis of the percentage of distribution of workers the sample selected in this study corresponds very closely to the proportion for the country as a whole. This conclu-

sion is very well illustrated in Figures 1 and 2, which are graphical presentations of the data in Table 3. We have used the figure 500 workers as a dividing line in this discussion, because it has been shown in studies made by the National Industrial Conference Board,* and the American College of Surgeons,** that it is the small plant, employing less than 500 workers, in which it is uneconomical to carry on an adequate industrial hygiene service, and that as a rule such services are existent only in the larger plants. The data in Table 3 have a very important implication, namely, that in order to take care of the workers in these smaller plants, which certainly predominate in numbers and also employ two-thirds of all the workers in the manufacturing establishments, some consideration will have to be given by an official health agency, in order to bring a program of industrial hygiene to these small establishments which can not afford to support such a service for their employees.

Health Service Provisions in Industry

It is now generally conceded that the fostering of programs for the minimizing of the hazards incidental to employment is in reality a far-seeing economy. Such programs contribute both to the social and industrial as well as economic progress of a community. In view of the far-reaching and favorable influence which such activities have been known to exert in industry, it was deemed essential in the present study to obtain some information on the extent of the industrial health service provisions in the plants under consideration. Tables 4, 5, 6 and 7 contain data on this subject.

The extent of provisions regarding safety organizations in the 209 plants studied is indicated in Table 4. It may be seen from this table that only 6.8 per cent of the workers in these plants had services of a full-time safety director, and that the bulk of the safety provisions were in the form of shop committees or services obtained from insurance companies. Table 4 shows that the clay, glass and stone industry is apparently the most "safety conscious," since more than half of the workers in this industry had the services of a full-time safety director. This is in accordance with a recent finding in a similar survey in Illinois. Safety services were found in all of the industries studied, but in Los Angeles apparently these are in large part of a part-time nature. Only the chemical and allied, clay, glass and stone, iron and steel, and some of the miscellaneous manufacturing industries considered it necessary to have a person devote his full time to caring for a safety program.

It is not possible to interpret the significance of these data in terms of the number of lost-time accidents; hence only limited conclusions may be drawn from the information on safety services. However, it is well known that proper and adequate safety provisions during the past quarter century have more than paid for themselves financially in lessened compensation and insurance costs, while the human saving effected in life and limb is even more important.

* National Industrial Conference Board, Inc., *Medical Supervision and Service in Industry*. New York, 1931.

** Newquist, N. M. *Medical Service in Industry and Workmen's Compensation Laws*. American College of Surgeons, Chicago, 1938.

TABLE 4
Industrial Health Service—Safety Provisions

Industry Group	Number of Plants	Number of Workers	Per Cent of Workers to Whom Type of Service Indicated Is Available				Other Safety Activities
			Safety Director	Shop Committee	Insurance Service	Part-time	
All industries -----	209	20,972	61.0	6.8	73.4	78.4	23.7
Manufacturing and mechanical -----	186	19,779	62.5	6.8	74.3	77.7	24.7
Chemical and allied -----	8	868	84.9	13.4	78.5	100.0	61.2
Clay, glass and stone -----	8	985	17.6	53.3	100.0	100.0	4.0
Clothing manufacture -----	11	839	81.4	---	---	96.1	---
Food and allied -----	34	4,603	58.8	---	65.8	91.5	20.4
Iron and steel -----	45	8,434	65.9	9.0	92.3	56.9	26.8
Metal industries, except iron and steel -----	14	406	76.6	---	58.9	90.9	---
Leather -----	8	585	76.2	---	81.2	92.8	64.8
Lumber and furniture -----	20	623	57.8	---	46.5	81.7	8.2
Paper, printing and allied -----	13	1,022	74.7	---	51.1	99.2	43.6
Textile manufacture -----	11	728	3.2	---	34.8	82.8	31.2
Miscellaneous manufacturing industries -----	14	686	88.5	3.1	65.0	96.5	---
Transportation -----	4	103	42.7	---	42.7	32.0	---
Personal service -----	19	1,090	35.7	---	60.3	96.1	8.2

The following Table 5 indicates the extent to which medical services were available to the workers in the 209 plants. Ten per cent of the 20,972 workers were provided the services of a company emergency hospital located on the grounds. The iron and steel plants were the only ones having such facilities, as may be seen from Table 5. Several of the industries had hospital services on a contract basis and apparently 9.3 per cent of the workers had such facilities available to them. Approximately one-half of the workers were in plants having first-aid rooms and practically every establishment included in this survey had first aid kits available for use and slightly more than one-half of the workers (54.9 per cent) were in plants employing a trained first-aid worker.

The value of the preemployment and periodic medical examination in raising the standards of employees' health has been amply demonstrated during the last few years, and especially by studies such as those conducted by Kammer* and Mishler.** For this reason, it was interesting to see what is being done concerning the physical examination in the industries in Los Angeles. From Table 5, it is apparent that 41.5 per cent of the workers are given a preemployment examination, whereas only 19.5 per cent are examined periodically. Apparently it is the chemical industry which considers the physical examination as very important, as may be seen from Table 5. The iron and steel industry and the paper, printing and allied industry also considered the physical examination as a necessary adjunct to their industrial hygiene program.

Table 5 shows very strikingly the fact that in the plants included in the survey in Los Angeles, no full-time physicians were available. In fact, only a few of the industries had part-time physicians, these being the chemical and allied, food and allied, iron and steel, and paper, printing and allied industries. Most of the plants maintained physicians on an "on call" basis—that is, whenever an emergency arose. It is well known, of course, that such type of medical service is only

* Kammer, A. G., *The Health of Steel Plant Workers*. Presented before annual meeting of American Institute Mining and Met. Engrs., New York, February 13-16, 1939. (Unpublished)

** Mishler, W. E., *The annual physical examinations; its effects in raising standards of employee health and efficiency*. Ind. Med. V. 8, 1939.

TABLE 5
Industrial Health Service Provisions—Medical Provisions

Industry group	Number of plants	Number of workers	Per cent of workers to whom service is available										
			Hospital		First-aid room	First-aid kit	Trained first-aid worker	Physical examination		Physician		Nurse	
			Company	Contract				Pre-employment	Periodic	Part time	Full time	Part time	Full time
All industries	209	20,972	10.1	9.3	48.2	98.7	54.5	41.5	19.5	12.9		86.8	5.7
Manufacturing and mechanical	186	19,779	10.1	9.9	50.4	98.6	56.3	43.8	20.5	12.9		86.1	5.7
Chemical and allied	8	868			86.8	100.0	85.6	83.1	78.5	50.6		49.4	13.4
Clothing manufacture	11	839				100.0	39.5					100.0	
Clay, glass and stone	8	985			53.3	99.0	74.1	92.1	22.1			100.0	
Food and allied	34	4,603		4.5	30.7	98.1	36.0	30.3	14.8	8.7		91.0	53.3
Iron and steel	45	8,434	25.2	19.5	73.6	98.1	89.9	67.2	23.3	16.8		82.8	22.3
Metal industries except iron and steel	14	406		8.9	8.9	100.0	34.7	12.6	8.9			100.0	28.2
Leather	8	585				100.0	44.8					100.0	
Lumber and furniture	20	623		4.2	11.7	108.9	43.0					100.0	
Paper, printing and allied	13	1,022			43.0	108.0	47.8	49.0	43.6	43.6		56.4	43.6
Textile manufacture	11	738			31.2	98.8						100.0	
Miscellaneous manufacturing	14	686		5.1	40.1	98.5	55.2	17.1	5.1			100.0	3.1
Transportation	4	103				100.0	32.0					100.0	
Personal service	19	1,090		.6	13.9	100.0	23.7	2.1	2.1			97.8	

for traumatic injuries and a physician on call has not the time nor incentive to establish an adequate industrial hygiene program for the workers. It is quite apparent in view of the absence of full-time plant physicians and from the data at hand that in so far as a medical program of industrial hygiene is concerned, comparatively little is being done in Los Angeles industry. The same may almost be said about the nursing services in Los Angeles, since only 21.5 per cent of the workers had the services of a full-time nurse. Here again, the clay, glass and stone industry lead the list with 53 per cent of its workers being provided with such services.

Disability Statistics

It has been recognized for some time that it is helpful to maintain adequate accident and sickness records, in order that the extent of the problem of industrial hygiene may be known in the various industries. Analysis of such data often are the means of initiating studies or procedures designed for the correction of hazardous conditions. Some industrial plants have recognized the need for keeping adequate records of worker's morbidity and mortality and for this reason the present survey attempted to determine the extent to which such records were kept. In addition, certain industrial plants have sick benefit associations some of which are maintained jointly by employers and employees. These sick benefit associations are for the purpose of compensating workmen who are suffering from nonindustrial injuries or from certain sicknesses which do not come within the purview of the compensation laws. As a rule these sick benefit associations also maintain sickness or disability records. In view of the important part such associations, and sickness data, play in any constructive industrial hygiene program, it was deemed of interest to obtain information on this subject in the present survey. This information is presented in Table 6.

It is apparent from Table 6 that 37 per cent of the workers were in plants maintaining sick benefit organizations but that only 25 per cent of the workers were covered by sickness records. As to be expected, accident records and occupational disease coverage were universally found in all plants, in accordance with the state laws on this subject.

TABLE 6
Industrial Health Service Provisions—Disability Statistics

Industry Group	Number of Plants	Number of Workers	Per Cent of Workers to Whom Indicated Service Is Available			
			Sick Benefit Organization	Sickness Records	Accident Records	Occupational Disease Coverage
All industries	209	20,972	36.9	25.7	100.0	100.0
Manufacturing and mechanical.....	186	19,779	40.0	26.5	100.0	100.0
Chemical and allied.....	8	868	78.3	83.1	100.0	100.0
Clay, glass and stone.....	8	985	82.4	14.9	100.0	100.0
Clothing manufacture.....	11	839	5.6	5.6	100.0	100.0
Food and allied.....	34	4,603	21.3	17.2	100.0	100.0
Iron and steel.....	45	8,434	52.1	32.7	100.0	100.0
Metal industries except iron and steel.....	14	406	--	--	100.0	100.0
Leather.....	8	585	--	--	100.0	100.0
Lumber and furniture.....	20	623	31.1	23.0	100.0	100.0
Paper, printing and allied.....	13	1,022	49.0	43.6	100.0	100.0
Textile manufacture.....	11	728	--	--	100.0	100.0
Miscellaneous manufacturing.....	14	686	13.3	27.8	100.0	100.0
Transportation.....	4	103	--	--	100.0	100.0
Personal service.....	19	1,090	3.3	3.3	100.0	100.0

Table 7 presents an interesting comparison of industrial health service provisions in plants employing more than 100 workers with those employing 100 workers or less, both for the survey in Los Angeles and for the summary of a survey in 15 states in the country. It may be seen in the comparison between Los Angeles and the 15 states surveyed, that in plants employing more than 100 workers, in so far as full-time safety services are concerned, Los Angeles only had 8.3 per cent of the workers so protected in contrast with an average of 33 per cent for the 15 states. It was already mentioned that no full-time medical services were available in the Los Angeles plants, whereas the figures in these 15 states, which may be considered as fairly representative of the conditions in United States industry, indicate an average 20 per cent of the workers were provided with full-time medical services. Again, with reference to full-time nursing services, Los Angeles had only 28.6 per cent of its industrial workers provided with such services in contrast with 43.7 per cent for the 15 states. With reference to the maintenance of disability statistics, Los Angeles plants again did not show up as well as those in the 15 states, as may be seen from the data in Table 7. In Los Angeles the smaller plants, those employing less than 100 workers, compared rather favorably with conditions in such sized plants in the 15 states recently studied. On the other hand, if we contrast the findings between the larger plants employing over 100 workers and the smaller ones, for either the 15 states or Los Angeles, it is very apparent that the larger plants far excel in those services known to be beneficial to the promotion of industrial health. For example, with reference to the provision of a full-time safety director in Los Angeles industries, the plants employing more than 100 workers had 8.3 per cent of their employees protected with such a service, as contrasted with only 2.3 per cent for the smaller sized plants. A similar contrast is true of provision for full-time nursing services and also for some other provisions.

These data take on significant implications when it is realized that the bulk of the plants in Los Angeles, and for that matter in the United States as a whole, are small. It has been indicated heretofore that it is the small plant which, as a rule, is unable to afford to maintain an industrial hygiene service, and the data in Table 7 certainly indicate the lack in the smaller plants particularly of those facilities recognized to be necessary for the promotion of health among workers. The inescapable conclusion from these data is that some governmental agency, such as the city health department should furnish those services now lacking in these smaller establishments.

TABLE 7

Industrial Health Service Provisions in Plants Employing More Than 100 Workers Compared With Plants Employing 100 Workers or Less Found in Surveys of 15 States and in Los Angeles

Kind of Service	Per Cent of Workers With Listed Service			
	Plants Employing More Than 100 Workers	Plants Employing 100 Workers or Less		
	15 States survey ^a	Los Angeles	15 States survey ^a	Los Angeles
Total number of workers-----	1,128,553	15,680	358,671	5,292
Safety organization—				
Safety director—				
Part-time -----	29.1	65.3	11.9	48.5
Full-time -----	33.0	8.3	2.2	2.3
Shop committees -----	63.2	82.9	12.5	45.4
Insurance service -----	*	75.0	*	88.7
Other services -----	49.1	27.5	18.5	12.5
Medical provisions—				
Hospital (company) -----	19.3 ^b	13.5	3.3 ^b	--
Hospital (contract) -----	^b	10.1	^b	7.0
First-aid room -----	65.0	60.8	6.9	10.8
First-aid kit -----	91.3	99.0	91.1	97.8
Trained first-aid worker-----	57.1	63.1	17.3	29.0
Physician—				
Part-time -----	27.6	17.2	5.6	--
Full-time -----	20.3	--	.4	--
On call -----	*	82.8	*	98.6
Nurse—				
Part-time -----	1.9	7.5	.5	.2
Full-time -----	43.7	28.6	.6	.4
Physical examination—				
Preemployment -----	*	49.1	*	18.9
Periodic -----	*	23.2	*	8.3
Disability statistics—				
Sick benefit organization-----	50.6	41.4	13.4	23.7
Sickness records -----	55.3	29.0	14.1	14.0
Accident records -----	97.4	100.0	83.0	100.0
Occupational disease coverage---	*	100.0	*	100.0

* No data.

^a Refers to unpublished report of industrial hygiene surveys conducted in 15 states (publication of summary now pending).

^b Company or contract—no separate figures.

Exposure to Specified Materials and Conditions

It is well known that in modern industry the many and varied materials incidental to industrial processes may be causative factors in the production of recognized occupational diseases and general ill health. The degree of ill health which may be caused by exposure to various conditions and materials in use in industry may only be determined through detailed medical, engineering and chemical studies of the working environment. However, some approximation of the potentialities of the situation may be reached by surveys of the type discussed in this report, which reveal the various exposures by occupation, department, and by industry. Hence, one of the most important objectives of this type of survey is the recording of raw materials, processes and by-products associated with each occupation in the

various establishments studied. In order to simplify the presentation of these data the numerous materials encountered in these establishments were classified under 46 main groups. For example, such substances as benzol and toluol were classified under coal tar products, while some of the solvents, such as acetone and the alcohols, were classified under alcohol, esters and ethers. Carbon tetrachloride and trichlorethylene were placed under halogenated hydrocarbons.

Table 8 shows the percentage of the total number of workers in each industry group who are exposed to certain materials and conditions in this study. The table is arranged in the numerical order assigned to specified types of materials to which the greatest number of workers were found to be exposed. It shows that, in so far as the total number of workers exposed in all industries is concerned, the largest number was exposed to materials designated as "other metals," 6,703 persons out of 20,972. The next largest exposure was to agents known to be capable of causing dermatitis, although the 5,434 persons listed in this group are not the only ones exposed to dermatitis, since many of the other 45 substances listed in this table are also capable of causing skin difficulties among the more susceptible individuals. Organic dusts, silicate dust, petroleum products, changes of temperature, other gases, carbon monoxide, excessive dampness, and so on, are some of the other important exposures from the view point of numbers exposed. It must be kept in mind, however, that just because large numbers of persons are exposed to a certain material or condition, this in itself does not indicate a dangerous condition. Large numbers of persons may be exposed to relatively less toxic materials, or the exposures may be under adequate control. However, in the absence of any quantitative data, the best quantitative criterion one can use is the number of individuals exposed, and if large numbers are found exposed to materials capable of causing ill health, then it simply indicates only that the conditions of exposure should be studied.

In a later presentation data will be given to indicate the important exposures in the various industries. It is evident that these exposures will vary somewhat with the industry in which they are found. In view of the fact that some workers are exposed to more than one material, the total number of exposures will be greater, of course, than the total number of workers exposed; this is evident from examination of the figures presented in the first numerical column in Table 8. Very little more comment can be presented on the data in Table 8, except to indicate that any one interested in a particular industry can readily obtain from the table the relative importance of the various exposures in that industry. For example, in the chemical industry the highest exposure was to petroleum products, 45.5 per cent of the workers being so exposed. Similar information is available concerning the industry contributing the largest number of exposures to any one material or condition. For example, it is well known that exposure to changes in temperature may cause certain respiratory diseases, especially pneumonia. This study indicated that 3,569 workers were exposed to the hazards of temperature changes, and that the personal service group and food and allied industries group contributed the largest number of exposures to this particular condition. Again, with reference to silica dust, we find from examination of Table 8 that the

[illegible]

* Less than 0.1 per cent.

metal industries, other than iron and steel, contributed the highest exposure, 18.2 per cent of all the workers exposed to silica dust being found in this particular industry. The clay, glass and stone industry was the next greatest contributor to silica dust exposure, followed by the iron and steel industry, the percentages of these two being 16.4 and 13.8, respectively. Data of this type are extremely valuable to the future administrators of industrial hygiene service in the city of Los Angeles since they reveal the problems to be investigated in an attempt to devise methods for their control.

Table 9 presents the types of materials in each industry group to which 20 per cent or more of the total number of workers are exposed. Twenty per cent was arbitrarily selected for the sake of convenience in order to limit the size of the table. It may be seen from this table that the important problems for the industrial hygienists to study and solve in the chemical and allied industries are the exposure of workers to petroleum products, other organic solvents, other gases or vapors, carbon monoxide, other metals and alkaline compounds. As to be expected, the clay, glass and stone industry, have the problem of silicate dusts, lead and its compounds, and nonsiliceous dusts. In the clothing industry, organic dusts are the only substances to which large numbers of workers are exposed, while in the food and allied industries, it is exposure to dermatitis producing agents, excessive dampness and changes in temperature which need to be looked into. Of the 8,434 workers in the iron and steel industry, those exposed to other metals, silicate dust, petroleum products, carbon monoxide and other gases or vapors are the ones in need of study. Similar information is available for all the other industries investigated. As already indicated, this presentation does not mean that one should overlook small numbers exposed to certain other conditions, but all things being equal, it is natural to try to evaluate and control at least at first the hazards to which largest numbers are exposed.

TABLE 9

Materials in Each Industry Group to Which 20 Per Cent or More Workers Are Exposed

Industry Group	Material	Exposed Workers	
		Number	Per Cent
Chemical and allied (868 workers)	Petroleum products -----	395	45.5
	Organic solvents -----	341	39.3
	Other gases -----	327	37.7
	Carbon monoxide -----	278	32.0
	Other metals -----	203	23.4
	Alkaline compounds -----	179	20.6
Clay, glass and stone (985 workers)	Silicate dust and corborundum--	576	58.5
	Lead and its compounds-----	198	20.1
	Nonsiliceous dust -----	197	20.0
Clothing manufacture (839 workers)	Organic dusts -----	700	83.4
Food and allied (4,603 workers)	Dermatitis producers -----	3,245	70.5
	Excessive dampness -----	2,133	46.3
	Temperature change -----	1,456	31.6
	Other metals -----	5,159	61.2
	Silicate dust and carborundum--	3,701	43.9
	Petroleum products -----	3,377	40.0
Iron and steel (8,434 workers)	Carbon monoxide -----	1,852	22.0
	Other gases -----	1,821	21.6
	Other metals -----	338	83.3
	Carbon monoxide -----	184	45.3
	Other gases -----	183	45.1
	Nonsiliceous dust -----	132	32.5
Metal industries, except iron and steel (406 workers)	Organic dusts -----	115	28.3
	Lead and its compounds-----	100	24.6
	Petroleum products -----	92	22.7
	Silicate dust and carborundum--	84	20.7
	Organic dusts -----	318	54.4
	Organic solvents -----	147	25.1
Leather (585 workers)	Organic dusts -----	431	69.2
Lumber and furniture (623 workers)	Dermatitis producers -----	160	25.7
	Silicate dust and carborundum--	138	22.2
	Inks -----	373	36.5
Paper, printing and allied (1,022 workers)	Organic dusts -----	348	34.1
	Organic solvents -----	294	38.8
	Lead and its compounds-----	263	25.7
	Organic dusts -----	557	76.5
Textile manufacture (728 workers)	Petroleum products -----	220	30.2
Miscellaneous manufacturing (686 workers)	Other metals -----	363	52.9
	Lead and its compounds-----	229	33.4
	Organic dusts -----	226	32.9
	Acids, mineral -----	189	27.6
	Dermatitis producers -----	181	26.4
	Silicate dust and carborundum--	158	23.0
	Petroleum products -----	155	22.6
Transportation (103 workers)	Organic solvents -----	41	39.8
	Organic dusts -----	35	34.0
	Excessive dampness -----	34	33.0
	Petroleum products -----	33	32.0
	Carbon monoxide -----	32	31.1
Personal service (1,090 workers)	Temperature change -----	627	57.5
	Excessive dampness -----	267	24.5

Application of Control Methods

Earlier in this discussion it was pointed out that certain information was obtained on the type of various control measures in use and the exposures associated with these control measures, in the 209 plants surveyed. It was not possible to determine the adequacy of the various control measures, but a record was made as to whether or not measures were employed, what they were, and the number of persons which they affected. The most efficient method for the control of a certain hazard can at times be incorrectly employed or improperly maintained, so that it would be necessary to conduct also engineering and chemical studies in order to determine the degree of a hazard and the effectiveness of any control measures applied. However, the data which have been collected on this particular subject, even though they do not show the efficiency of operation, do indicate some recognition on the part of industry that a potential hazard exists and that something should be done about it.

Table 10 presents the per cent of workers exposed to specified types of materials and provided with an indicated type of control measure. This particular study showed that the 20,972 workers had a total number of 61,829 exposures, some which were constant and some were intermittent. This is practically an average of three exposures per person and is in line with similar findings in other parts of the United States.

It is apparent from the data in Table 10 that the most prevalent type of control measure was that of protective clothing, 18.4 per cent of the workers being provided with such clothing. The next largest application of control measures was that of local exhaust ventilation, the percentage of workers so protected being 13.8. Wet methods in the case of dust exposure were employed for only 4.4 per cent of the workers. Table 10 shows the control measure employed for each one of the 46 groups of specified materials and conditions. For example, in exposure to dermatitis producing agents, where 5,434 exposures were recorded, the data reveal that protective clothing was the most prevalent control method, 49.2 per cent of the workers having this type of control provided them. In the case of exposure to lead and its compounds, capable of producing lead poisoning under certain conditions, we find that 14 per cent of the workers were provided with local exhaust ventilation, 13 per cent with protective clothing, mostly in the form of respirators and 10 per cent were protected by general ventilation of the positive or negative type. In the exposure to silica dust, it was found that of 1,641 exposures, wet methods were employed to a considerable extent, since 35.6 per cent of the workers exposed to silica dust had wet methods applied in an attempt to control the hazard. Respirators were next in rank of use, 20.8 per cent of the workers being so equipped, and next 16.8 per cent of the workers were protected by local exhaust ventilation.

Data such as shown in Table 10, in spite of the lack of quantitative studies, do indicate what efforts have been made by industry in the city of Los Angeles in providing control for certain hazardous exposures. These methods should be evaluated and, if necessary, additional remedial measures recommended.

One other item may be mentioned with regard to Table 10. In connection with local exhaust ventilation, which experience has shown

TABLE 10
Per Cent of Workers Exposed to Specified Materials Having Indicated Type of Control Measure

Materials	Total number of exposures	Per cent of workers having specified control measure									
		General ventilation		Local exhaust	Enclosed process	Wet methods	Gas masks	Respirators	Pressure helmet	Protective clothing	Other
		Positive	Negative								
All specified materials.....	61,829	2.8	3.3	13.8	3.6	4.4	.5	3.9	.7	18.4	4.5
Other metals.....	6,703	.7	1.5	13.5	.9	6.4	—	3.7	.4	8.8	2.2
Dermatitis producers.....	5,434	3.2	3.2	9.1	1.6	2.8	—	5.0	.2	49.3	8.8
Organic dusts.....	5,303	2.5	3.0	14.1	2.5	15.4	.1	7.2	(*)	3.2	1.0
Silicate dust and carborundum.....	5,096	2.2	(*)	11.1	2.5	—	—	.4	.1	15.4	3.9
Petroleum products (except solvents).....	4,857	4.9	3.0	15.6	5.8	—	—	.1	—	20.3	7.3
Temperature change.....	3,569	4.0	8.0	41.4	17.9	—	—	.1	1.2	6	1.4
Other gases.....	3,516	4.3	8.5	44.1	12.5	—	—	—	(*)	3	8
Carbon monoxide.....	3,458	—	1.6	2.9	4.9	—	—	—	—	71.1	41.2
Excessive dampness.....	2,721	8.9	8.8	11.1	4.9	—	—	8.5	3.5	19.9	5.4
Organic solvents.....	2,469	4.4	7.7	22.2	3.5	25.4	1.8	3.9	—	1.1	1.1
Non-siliceous dust.....	2,106	10.8	10.8	14.2	3.5	5.1	.5	6.1	.1	13.2	6.0
Lead and its compounds.....	2,025	8	1.0	4.0	2.7	.3	—	.9	—	33.9	2.0
Alkaline compounds.....	1,987	2.2	8.8	9.0	1.4	—	—	2.6	—	19.7	2.8
Oils, fats, waxes.....	1,666	2.2	3.1	16.8	1.6	—	—	20.8	.9	21	2.6
Silica dust.....	1,641	6.0	3.1	3.7	4.9	35.6	.1	.2	—	56.6	12.2
Salts, inorganic, technical, and analytical.....	1,970	2.7	4.3	6.4	1.6	—	—	—	—	36.4	—
Acids, mineral.....	888	—	—	—	—	—	—	—	—	19.0	—
Defective illumination.....	877	3.5	2.2	30.1	—	.8	—	41.2	7.8	10.9	12.0
Paints and enamels.....	743	3.9	1.2	29.4	—	.1	—	20.6	7.6	19.3	9.2
Lacquers and varnishes.....	726	11.3	1.9	24.0	.6	—	.9	10.8	9.0	31.7	8.6
Alcohol, ethers, esters.....	701	—	—	—	—	—	—	—	—	31.8	1.3
Inks.....	686	—	—	—	—	—	—	—	—	33.8	1.9
Infections.....	515	—	4	—	—	—	—	.6	—	2.6	—
Sulphur and alkaline sulphides.....	465	—	.4	.4	—	—	—	—	—	—	—
Excessive noise.....	322	—	—	—	—	—	—	—	—	55.1	10.2
Chemicals, organic and inorganic.....	303	5.0	13.2	18.8	2.0	4.3	—	1.7	—	23.8	13.2
Antimony.....	273	28.6	5.3	24.6	0.2	0.2	—	9.2	—	48.6	2.4
Acids, organic.....	247	5.7	5.3	5.3	2.4	—	—	—	—	13.5	4.1
Coal tar products.....	244	—	—	—	5.3	3.3	4.9	9.8	—	23.6	13.2
Chromium.....	212	24.1	6.6	35.4	15.2	6.1	—	9.9	—	57.9	.6
Coal dust, bituminous.....	164	—	2.4	45.1	7.1	15.2	—	17.1	—	23.6	—
Dyes.....	140	—	3.6	7.1	1.4	—	—	8.6	—	57.9	—
Halogenated hydrocarbons.....	135	—	.7	51.1	56.3	—	—	—	—	8.1	—

is a very flexible type of control and can be widely applied in a variety of conditions, it was found that the largest percentage of workers protected with local exhaust ventilation was the one exposed to cadmium and its compounds (60.43 per cent), to fluorides (60.5 per cent), and to halogenated hydrocarbons (51.1 per cent). This indicates that local exhaust ventilation has been employed considerably in exposures to what are known as highly toxic materials.

One of the questions which an industrial hygiene administrator may ask himself is the number of persons that may be exposed to any one of various hazardous conditions obtaining in industry in the locality under his administration. Since it was not practicable at this time to survey all of the industrial establishments, an attempt to answer such a question can be made from the data at hand by estimating the expected number of persons associated with the various conditions and materials listed in the preceding tables. This is permissible when the sample is adequate and representative, as is the one in this study. For example, our study shows the survey percentage of the total number of workers exposed in the several industrial groups to the various materials and conditions listed in the tabular data presented so far; from a knowledge of the total number of workers in the industries studied, the above survey percentages may be applied to that total and a probable estimate made of the number of workers who may be found exposed to these various hazardous conditions. Such an estimate is presented in Table 11, which shows the expected number of workers exposed to specified materials in the industries under study in Los Angeles. The number of workers surveyed, which forms the basis for the percentages in the first column, was 20,972. The number of workers in the industries selected for study in Los Angeles comprised a total of 126,279 and this number was the basis for the estimate shown in column 2. It is evident from data in Table 11 applying the survey percentages to the total workers engaged, that we may expect some 40,000 persons to be exposed to other metals; about 32,720 are estimated to be exposed to dermatitis producing agents, although there are many other exposures to substances which are capable of producing dermatitis in susceptibles—hence the above figure may be an underestimate; with reference to the problem of lead poisoning, apparently some 12,000 persons are exposed to lead and its various compounds, while the question of silicosis indicates that nearly 10,000 persons are exposed to the inhalation of silica dust. Furthermore, the total number of exposures for the survey group was 61,829, or an average of three exposures for the survey group was 61,829, or an average of three exposures per worker which for the total of 126,279 workers in Los Angeles industries, indicates the total number of exposures to be 378,837.

It is obvious that these data reveal the important problems, at least in so far as the number of persons in the selected industry groups exposed to the various materials and conditions of public health significance, is concerned. Any preventive program which may be instituted should aim to give serious consideration to a study of these various exposures and their control.

TABLE 11

Estimated Number of Workers Exposed to Specified Materials in Selected Industry Groups in Los Angeles

Materials	Per Cent of Workers Exposed (Survey)	Estimated Number of Workers Exposed
Number of workers surveyed (basis for per cents in column 1), 20,972.		
Number of workers in selected industry groups in Los Angeles (basis for estimated num- ber in column 2), 126,279.		
Other metals -----	31.96	40,361
Dermatitis producers -----	25.91	32,720
Organic dusts -----	25.29	31,931
Silicate dust and carborundum -----	24.30	30,685
Petroleum products -----	23.16	29,246
Temperature change -----	17.02	21,490
Other gases -----	16.77	21,171
Carbon monoxide -----	16.49	20,822
Excessive dampness -----	12.97	16,384
Organic solvents -----	11.77	14,867
Nonsiliceous dust -----	10.04	12,681
Lead and its compounds -----	9.66	12,193
Alkaline compound -----	9.47	11,964
Oils, fats, waxes -----	7.94	10,031
Silica dust -----	7.82	9,881
Salts, inorganic, technical and analytical -----	4.63	5,841
Acids, mineral -----	4.23	5,347
Defective illumination -----	4.19	5,281
Paints and enamels -----	3.54	4,474
Lacquer and varnishes -----	3.46	4,365
Alcohol, ethers, esters -----	3.34	4,221
Inks -----	3.27	4,131
Infections -----	2.46	3,101
Sulphur and alkaline sulphides -----	2.22	2,800
Excessive noise -----	1.54	1,939
Chemicals, organic and inorganic -----	1.44	1,824
Antimony -----	1.30	1,644
Acids, organic -----	1.18	1,487
Coal tar products -----	1.16	1,469
Chromium -----	1.01	1,277
Coal dust—bituminous -----	.78	988
Dyes -----	.67	843
Halogenated hydrocarbons -----	.64	813
Cyanides -----	.61	771
Hydrogen sulphide -----	.58	729
Fluorides -----	.36	458
Asbestos dust -----	.35	440
Hides -----	.33	415
Manganese -----	.32	403
Sulphur dioxide -----	.17	211
Arsenic -----	.14	181
Cadmium and its compounds -----	.13	169
Aldehydes -----	.08	96
Medicinals -----	.06	72
Mercury and its compounds -----	.04	48
Phosphorus -----	.02	30

Occupational Disease Reports

According to paragraph 6407, chapter 2, of the California Labor Code,* "every employer, insurer and physician or surgeon who attends any injured employee shall file with the commission, a complete report of every injury to each employee arising out of or in the course of his employment unless disability resulting from such injury does not last through the day or does not require medical service other than ordinary first-aid treatment." In California the term "injury" includes any injury or disease arising out of the employment, including injuries to artificial members." As a result of this law and the definition of the term injury, the State Industrial Relations Department has been receiving reports on occupational diseases as well as accidental injuries. The industrial hygiene service of the State Department of Public Health, soon after it was established in 1937, made arrangements with the Industrial Accident Commission of the State Department of Industrial Relations to make a transcription of these reports. As a result of this arrangement, it was possible to obtain information on the occupational diseases reported from Los Angeles for the fiscal year 1937-1938.

Table 12 presents the number of cases of occupational disease reported in the selected industries by cause. Of a total of 360 reported cases shown in Table 12, the food and allied industries contributed 33.7 per cent; the chemical and allied industry ranked second in its contribution of reported cases, with a percentage of 18.6. The leather industry seemed to have the least number of cases reported, its total being only 3 out of 360, or less than 1 per cent. It is also apparent from Table 12 that dermatitis and conjunctivitis are the two most frequent causes of reported occupational disease, these two accounting for 81 per cent of all the cases.

TABLE 12

Number of Cases of Occupational Diseases Reported in Selected Industry Groups, by Cause (1937-1938)

Industry group	Total		Dermatitis	Conjunctivitis	Chemical burns	Lead poisoning	Gas poisoning	Nausea and dizziness	Respiratory infections	Hayfever	Infections	Chronic ulcers	Ear irritations
	Number	Per cent											
Per cent of total.....	100.0		41.7	39.4	6.1	1.1	1.9	1.4	5.8	.6	1.1	.3	.6
Chemical and allied.....	67	18.6	25	17	5	1	4		13	2			
Clay, glass and stone.....	35	9.7	9	15	7		1	2	1				
Clothing manufacture.....	4	1.1	4										
Food and allied.....	121	33.7	48	68	2		1				2		
Iron and steel.....	44	12.2	11	29	1	2			1				
Metal industries except iron and steel.....	16	4.5	11	2	1				2				
Leather.....	3	.8	2						1				
Lumber and furniture.....	11	3.1	6		3				1			1	
Paper, printing and allied.....	13	3.6	9		1			2			1		
Textile manufacture.....	4	1.1	4										
Miscellaneous manufacturing.....	22	6.1	7	10	1			1	1				2
Transportation.....	12	3.3	8	1		1	1		1				
Personal service.....	8	2.2	6		1						1		
Total number of cases.....	360	100.0	150	142	22	4	7	5	21	2	4	1	2

* California Workmen's Compensation Insurance and Safety Laws. The State Compensation Insurance Fund. California, 1933.

Table 13 shows the number of cases of occupational disease reported in industry groups which were not covered in the present survey. These are agriculture, forestry, mining, trade, and others shown in Table 13. In all, there were 329 cases reported from these industries. Adding those not used in the present analysis for various reasons, it was found that a total of 806 cases of occupational disease was reported from Los Angeles. The number of cases reported for the entire State of California during the same period was 2,798. In other words, approximately 29 per cent of all the cases of occupational disease reported in California were reported from Los Angeles. This percentage appears reasonable when it is recalled that Los Angeles employs approximately 23 per cent of the gainful workers in the state.

From Table 13 it is also evident that dermatitis cases account for the greatest percentage of the total, slightly more than 50 per cent of the 329 cases being reported for that particular cause. Again, conjunctivitis is second on the list, followed by chemical burns. It is apparent that occupational diseases can occur in other industries besides manufacturing and mechanical and that industrial hygiene problems will be found in all places where people work.

TABLE 13
Number of Cases of Occupational Diseases Reported in Industry Groups
Not Surveyed by Cause (1937-1938)

Industry group	Total	Dermatitis	Conjunctivitis	Chemical burns	Lead poisoning	Gas poisoning	Nausea and dizziness	Respiratory infections	Benzol poisoning	Infections	Facial paralysis	Pain poisoning	Zinc poisoning
Agriculture	6	5						1					
Forestry	2	2											
Extraction of minerals	40	10	21	6	1		1		1				
Other transportation	12	3	8			1							
Trade	25	19	1				1	1		3			
Public service	40	17	12	1		2	1	6		1			
Recreation and amusement	15	13	1					1					
Hotels, restaurants	24	19	2					1		1	1		
Building and construction	8	5	1	1				1					
Not specified industries	157	83	32	21	2	2	7	3		5		1	1
Totals	329	176	78	29	3	5	10	14	1	10	1	1	1

Table 14 shows the distribution of occupational diseases reported for selected industry groups by cause and by causative agents. The causative agents listed in this table under the heading "materials" conform to those given in preceding tables on exposure. It may be seen from Table 14 that dermatitis producers rank highest on the list, with radiation second, nonsiliceous dusts third, and alkaline compounds fourth. The cases reported for dermatitis were produced first by materials classed as dermatitis producing agents, second by organic solvents, alkaline compounds third, and petroleum products fourth. Most of the conjunctivitis cases reported were due to specific dermatitis producing substances and radiation, such as from the arc welding process. Most of the respiratory infections were caused by exposures to gases and vapors.

TABLE 14
Distribution of Occupational Diseases Reported in Selected Industry
Groups by Cause and by Agent

Materials	Total	Dermatitis	Conjunctivitis	Chemical burns	Lead poisoning	Gas poisoning	Nausea and dizziness	Respiratory infections	Hay fever	Infections	Chronic ulcers	Ear irritations
Dermatitis producers	115	50	64							1		
Radiation	56	1	54	1								
Non-siliceous dust	23	9	8	5				1				
Alkaline compounds	19	11	2	4				1		1		
Organic solvents	17	13	1				2	1				
Acids, mineral and organic	14	7	3	3				1				
Other gases	13	1	2	2		3		5				
Petroleum products	12	11			1							
Paints and enamels, lacquers and varnish	11	5			3			3				
Chemicals	10	6		2			1	1				
Organic dusts	8	4	1					1	2			
Chromium	8	6	1	1							1	
Coal tar products	7	2	1	4								
Hides	5	4	1									
Dyes	5	4	1									
Carbon monoxide	5		1			3		1				
Infections	4	4										
Salts	4	4										
Sulphur dioxide	4		2					2				
Silicate dust	3	1	1					1				
Oils, fats, waxes	3	2								1		
Other metals	3	2						1				
Cyanide	3	1					1	1				
Temperature change	3						1	1		1		
Excessive noise	2											2
Hydrogen sulphide	1					1						
Mercury	1	1										
Inks	1	1										
Totals	360	150	142	22	4	7	5	21	2	4	1	2

Experience has shown that unless certain potential occupational exposures are controlled, injury is bound to result. For this reason an analysis was made of the number of exposures to certain agents capable of causing disease, as found in the present survey, and the number of cases reported due to these same agents. Such a comparative analysis is shown in Table 15, which gives the percentage distribution of exposures to certain agents capable of producing disease and compares this distribution with corresponding percentages based on the reported number of cases of occupational diseases. It is obvious that a striking relationship exists between the percentage distribution of potential occupational disease hazards (exposures) and reported cases for the same causes. The obvious conclusion is that potential hazards can become actual hazards unless measures are taken for the control of exposure to such potential hazards.

TABLE 15
Percentage Distribution of Exposures to Certain Agents Capable of Causing Disease
as Compared With Corresponding Percentages Based on Reports of Occupational
Diseases

Occupational Disease	Per Cent of Total Exposures to Agents Capable of Causing Disease	Per Cent of Total Cases Reported Caused by These Agents
Dermatitis	74.2	41.7
Conjunctivitis	52.7	39.4
Chemical burns	16.8	6.1

Review of Industrial Hygiene Activities

In the introduction of this report mention was made of the fact that in an appraisal of the activities in industrial hygiene, account should be taken of the activities of all agencies interested in, and responsible for, the protection of the health of workers. There are, of course, numerous nonofficial agencies interested in the subject of industrial hygiene in California and in Los Angeles. The Greater Los Angeles Safety Council, the Los Angeles Chamber of Commerce and similar organizations, are quite interested in this subject but their activities in the field of prevention have not been very extensive so far as industry is concerned. Indirectly, there are other organizations of a nonofficial character that at times reach the industrial worker. The present discussion, however, will be confined to comments on those agencies of an official nature in the state, which are legally responsible for the protection of the health of the industrial worker.

The two state agencies most concerned with industrial health and safety matters are the Department of Industrial Relations and the Department of Public Health.* The Department of Industrial Relations is headed by a director, who is also the chairman of the Industrial Accident Commission. In this department, there is a division of industrial accidents and safety, a division of labor statistics and law enforcement, and a division of industrial welfare. The Industrial Accident Commission administers the state Workmen's Compensation Act, and is vested with full power and jurisdiction over and supervision of every employment and place of employment in the state, including mines, in order adequately to administer safety laws and orders. The Industrial Accident Commission is empowered to prescribe safety devices, fix reasonable standards, order installation and maintenance, and issue general safety orders in which procedures are prescribed. At this writing the Industrial Accident Commission has issued 27 safety order codes. A list of these codes follows:**

Safety Order Codes Issued by the Industrial Accident Commission of California

Air Pressure Tank Orders
 Safety Rules for Operating Regulations for Automotive Passenger State
 Corporations and Transportation Companies
 Boiler Safety Orders
 Compressed Air Safety Orders (Caisson Work)
 Dust Fumes, Vapors and Gases Safety Orders
 Elevator Safety Orders
 Engine Safety Orders
 General Construction Safety Orders
 Safety Rules for Gold Dredges
 Laundry Safety Orders
 Liquefied Petroleum Gases Safety Orders
 Logging and Sawmill Safety Orders
 Mechanical Power Transmission Safety Orders
 Mine Safety Orders
 Boat Safety Orders
 General Petroleum Industry Safety Orders
 Electrical Safety Orders
 Quarry Safety Rules

* National Silicosis Conference. Report on Regulatory and Administrative Phases. U. S. Department of Labor Bulletin No. 21, Part 4. Government Printing Office, Washington, D. C., 1938.

** Index to Industrial Safety Requirements for Shipbuilding. Department of Industrial Relations, California, 1938.

Shipbuilding Safety Orders
Trench Construction Safety Orders
Tunnel Safety Rules
Window Cleaning Safety Orders
Woodworking Safety Orders
General Construction Safety Orders (Relating to Storage and Use of
Explosives)
Steam Shovel and Locomotive Crane Safety Orders
General Safety Orders
Safety Laws and Regulations.

The division of labor statistics and law enforcement, as its name implies, enforces labor laws not specifically vested in any other agency. Among the laws coming under its jurisdiction is a general provision requiring ventilation of factories and workshops that will render harmless all dusts, gases, and so forth, generated in the course of manufacturing processes.

The division of industrial welfare makes investigations and has rule-making power over wages, hours and standard conditions of labor for women and minors, to be exercised subject to procedures set forth.

The State Department of Public Health has under its present law power to cause special investigation of the sources of mortality and the effects of localities, employment, conditions, and circumstances on the public health; it has the general power of inspection, examination, quarantine, and disinfection of persons, places and things; it has the power to adopt and enforce rules and regulations for the enforcement of its duties; it has also the power to commence and maintain all proper and necessary actions and proceedings to enforce its regulations and to protect and preserve the public health.

It is apparent from the various duties authorized and set forth for these two official agencies in California, that either or both of them could conduct industrial hygiene activities. However, it is the attitude of the Industrial Accident Commission that industrial hygiene is a public health matter and, therefore, can best be conducted by the public health agency. Hence, early in the inauguration of the Industrial Hygiene Service in the State Department of Public Health, arrangements were made between the Industrial Accident Commission and the Industrial Hygiene Service to carry on a cooperative activity in this field. The Industrial Accident Commission confines its industrial hygiene work to the prevention of accidents and maintains factory inspectors who make investigations in industry for this purpose. The Industrial Hygiene Service has the necessary medical, engineering and chemical personnel, and a well equipped laboratory for conducting highly technical investigations in industry, with particular reference to the control of occupational diseases and the promotion of general health among workers. As already indicated, the Industrial Accident Commission, the agency receiving reports of occupational diseases, makes these reports available to the Industrial Hygiene Service, so that they may be investigated and necessary steps taken to prevent further cases of the same type. The factory inspectors of the Industrial Accident Commission call to the attention of the Industrial Hygiene Service, from time to time, conditions in industry that they believe to need technical study. These conditions are investigated by trained personnel of the Industrial Hygiene Service and official reports are rendered to the Industrial Accident Commission for action. In the past, joint studies

also have been made by the Industrial Accident Commission and the Industrial Hygiene Service. It is apparent from the excellent relationships which have been maintained during the past two years in the field of industrial hygiene in California, that real progress is being made through their joint efforts in the prevention and control of industrial health hazards.

The Industrial Hygiene Service of the California State Department of Public Health was only established on July 7, 1937. Its basic purpose is "to provide a health service for industrial workers by studying, evaluating and correcting workroom conditions which may be detrimental to health, and at the same time, to render an economic service to industry, through the resulting saving in compensation insurance costs, increased efficiency and improved morale of employees, reduced labor turnover and lower costs of production."

The Industrial Hygiene Service at present consists of one physician, two engineers, a chemist, two clerks, and has a total annual budget of \$22,000. Although this is a good beginning, it is apparent that this number of personnel and the meager budget under which the service has to work, will not allow for an extensive coverage of the industrial hygiene problems in a state the size of California, with its large population of gainfully employed persons. For this reason, the Industrial Hygiene Service has been attempting to interest the various municipal, county and district health units in the field of industrial hygiene. In accord with the plan of state government, other public health services are administered on a basis of local participation and, in fact, most of the actual local public health work is actually accomplished by and through local health units. The State Department of Public Health acts mainly as a consulting service, maintaining on its staff people familiar with the various problems of public health, who are in a position to assist the cities and counties in the solution of some of the problems confronting them and to serve directly populations not provided with public health service. There is no reason why industrial hygiene should not, and could not be administered on the same basis. Such has been the practice in some of the other states. For example, in the State of Missouri the St. Louis Health Division and the St. Louis County Health Department both maintain industrial hygiene personnel on their staff, in addition to the industrial hygiene service in the State Health Department. In Maryland, the city of Baltimore has an industrial hygiene service, and in Michigan, the city of Detroit also has an industrial hygiene bureau, working very closely with the State Bureau of Industrial Hygiene. Such procedure is especially desirable for those public health functions which are for the common benefit of the industrial and general population in the state.

Recommendations

The survey of 209 representative establishments in the city of Los Angeles, the results of which are presented in this report, shows definitely that a large number of workers in Los Angeles establishments are exposed to materials and conditions which if not properly controlled may be inimical to their health. The survey of these establishments also shows that although some measures concerning industrial health services are being practiced, on the whole many of the workers

do not receive any type of industrial hygiene service. This is especially true in the smaller plants. An analysis of the application of well established control measures for those exposures known to be hazardous was made from the survey data and this analysis also indicates that much remains to be done in the control of health hazards in the industries in Los Angeles. Occupational disease reports presented herein, further corroborate the fact that health hazards exist and are in need of control. All of which leads to the conclusion that a real industrial hygiene problem exists in Los Angeles and it is, therefore, recommended that an industrial hygiene service be established in the Los Angeles City Department of Health and that this service work very closely with the State Industrial Hygiene Service and with the other public health services in the health department itself.

Industrial hygiene practice consists essentially of two functions; one dealing with the hygiene of the person and the other with the sanitation of the person's working environment. The first requires the employment of medical sciences, including the services of such professional personnel as physicians, nurses, bacteriologists, physiologists, pathologists, who can throw some light on the hygiene of the individual. The personnel dealing with the environment are primarily engineers, chemists, and those others skilled in evaluating and controlling the environment in which workers live and work. A complete industrial hygiene program has to make use of both types of services. With reference to the organization of the service, two methods of approach may be employed. The first and preferred arrangement would call for the establishment of a separate industrial hygiene section in the proposed division of preventable diseases, while the second would consist of having the work done by properly qualified and trained personnel working in unison, although attached to other divisions in the health department. Under the second less desirable plan the proposed division of preventable diseases in the Los Angeles City Health Department, could have on its staff a physician thoroughly trained in industrial hygiene and of course, also basically grounded in public health, who will devote his entire time to industrial health matters. His presence in a division of preventable diseases will enable him to work much more closely with those other medical and nursing services in the field, which are also very applicable to the industrial population. In other words, he will have a greater opportunity, being in that division, to integrate his industrial hygiene program with the other public health medical and nursing services. The proposed sanitation division in the Los Angeles City Health Department, in turn could have on its staff an engineer thoroughly trained in industrial hygiene practice. The laboratory division could have on its staff a chemist who is familiar with industrial hygiene analyses. All of these employees could be closely coordinated through some responsible person on the administrative staff, preferably one deeply interested in the promotion of health among workers.

Experience had indicated that in order to carry on an effective program of industrial hygiene certain activities are essential. These may be summarized briefly as follows: (1) Preliminary survey of all industries similar to the one for selected industries presented in this report, in order to determine the scope and nature of the industrial

hygiene problem in the locality. (2) Surveys, by the personnel of the industrial hygiene service, of plant conditions capable of causing industrial diseases, in order that advice and recommendations for the control of existing or potential hazards may be given. (3) In order to determine what some of the problems are, there should be an attempt made to receive reports of all types of disability from various establishments; check data could also be received for reported cases in the city of Los Angeles from the State Industrial Hygiene Service. (4) The Industrial Hygiene Service should serve as a source of information for other departments, to industry, labor, various insurance and medical interests, and any other organization that is concerned with or interested in industrial hygiene. (5) An educational program should be carried out for the purpose of acquainting industry and other groups as to the importance of the industrial health problems in the community. (6) The promotion of general health improvement programs reaching all the workers in the city should be practiced. Industrial hygiene covers a wide field, goes beyond the control of occupational diseases at work, and could be used as a means of mass education in the same way as school hygiene has been used to improve conditions in the home.

There are some of the functions that are essential in the practice of industrial hygiene. The suggested personnel and budget for carrying out these various activities follow. The salary items if necessary should be modified to conform with those for positions carrying like responsibilities in the Los Angeles City Health Department.

	Annual Cost	Personnel
Physician -----	\$4,000-	\$4,500
Industrial hygiene engineer-----	3,000-	3,600
Chemist -----	2,400-	2,700
Stenographer -----	1,200-	1,500
Travel -----		500
Equipment (first year only) -----		5,000
Supplies -----		400
	<hr/> \$16,500-\$18,200	

In closing, it is desired to emphasize that sufficient knowledge is now at hand concerning the effective practice of industrial hygiene for the control of most of the health hazards in industry and that knowledge is constantly growing. The degree of application of these methods in any community will surely be reflected in the general health status of that community.

Acknowledgments

The U. S. Public Health Service wishes to express its appreciation to the Director of the California State Department of Public Health and to its industrial hygiene service for furnishing the authors of this section with copies of the plant surveys employed in the analysis presented herein and for making available the list of the occupational diseases used in this discussion. It is also desired to express appreciation to the Industrial Accident Commission of the California Department of Industrial Relations for supplying the authors with data on the various labor laws and safety order codes existent in the state. And, finally, thanks is due to the city health officer and to various officials of the establishments for their cooperation in furnishing the information requested and in making the plants available for study.

MATERNAL AND CHILD HEALTH SERVICES

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The maternal health services and the child health services of the city department of health formerly were administered as two separate divisions of the department. The Los Angeles City Health Department had maintained for about 8 years up to 1935, a maternity division under the direction of a full-time physician who was designated as an assistant health officer. A severe cut in the budget of the city health department for the fiscal year 1935 necessitated curtailment of activities and the maternal health services of the city health department were merged with those of the county; the medical, clerical and social service activities of this division were turned over to the Los Angeles County General Hospital under the supervision of the county department of charities and the county now administers the maternal health program for both city and county although the city health department still continues to participate through furnishing city clinic facilities in the health department's building and by furnishing some public health nursing personnel for city field work.

Maternal Health Services

The maternal health clinic services for the city of Los Angeles are concentrated in the maternity center, formerly maintained by the city health department, which occupies almost the entire ground floor of the ten-story building housing the city health department. At present the maternity center is actually an outpatient clinic of the maternity service of the Los Angeles General Hospital and the obstetrician who is chief of the hospital's maternity service, is in general supervisory charge. He is assisted by two supervisors (physicians) who spend their full-time at this clinic and is further assisted in his work by a voluntary attending staff; namely, a cardiologist, a dermatologist, and six attending obstetricians. There are also assigned for service at the maternity center, six second-year internes of the general hospital who thus are given a nine months' residency in obstetrics, three months on clinic obstetrics and six months as externes on outside obstetrics (home deliveries). A group of six medical students from the University of Southern California and from the College of Medical Evangelists also are in attendance at the clinic at all times; each group of medical students spends about two weeks with the clinic for their practical undergraduate training and experience in obstetrics. The maternity clinic is staffed by nurses from the city health department and student nurses from the Los Angeles County General Hospital also receive their outpatient obstetrical training at this center under the supervision of the medical staff of the maternity center and the city health department division of nursing. Clinics at the maternity center are held every Wednesday, Thursday and Friday. On Monday morning a staff seminar is held, lasting about one hour, on all problem cases. A branch clinic is conducted on Tuesday afternoons at the San Pedro Health District offices of the city health department.

All new cases for admission must be passed on by the social service division of the county department of charities. They must meet the requirements for admission to the Los Angeles County General Hospital as to residency and lack of income or other sources of assistance. Charges are made for delivery services wherever possible but not for clinical services; the charges range from \$30 to \$35 for home delivery service and from \$80 to \$90 for hospital delivery service. It is reported that the social service division assists those expectant mothers who are found to be ineligible for service at the maternity center, to obtain other clinical service such as at the White Memorial Hospital, Maternity Cottage (Baurhyte's), et cetera.

Prenatal cases, upon admission to the maternity center are given a complete physical examination including routine urinalysis and serology. The laboratory work is done by the city health department laboratory.

Home delivery service is given only to those patients who are found, after careful examination and study, unlikely to present any pathology during the stages of childbirth. The problem cases (pathological or complicated or potentially complicated cases) are sent to the Los Angeles General Hospital for delivery service if eligible by reason of residence and financial status.

One resident externe, two medical students and one student nurse are assigned to be in attendance at all home deliveries. Definite regulations, rules and procedures have been prepared and they are followed to the letter. The home delivery service has been so carefully supervised during the past few years that during the fiscal year 1938, there have been no deaths or infections reported in this home delivery service.

Home visits for medical follow-up are made by the externes and medical students as well as by the student nurses. All public health follow-up work, such as prenatal and postnatal home visitation as well as public health education, is done by the nursing staff of the city health department. Mothers are urged to bring their babies to the clinic for at least two postpartum visits and a complete check-up of the mother and child is made six weeks after delivery. At this time circumcisions are done on the child indicated. Further discussion of the nursing service and venereal disease control activities of the maternity center will be found elsewhere under their specific sections in this report.

The following table briefly recapitulates the activities of the maternity center during the fiscal year ended June 30, 1938:

New applicants admitted to clinic.....	2,505
Number of babies admitted to clinic.....	1,026
Clinic visits	20,346
Total visits	22,851
Average attendance per clinic session.....	62.6
Number of home deliveries.....	767
Number of babies—home deliveries.....	773

During the fiscal year 1938 there were 20,127 births reported to the Los Angeles City Health Department:

Delivered by physician	19,551
Delivered by midwife	486
Delivered by other or none.....	90

Total births	20,127
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Of the 20,127 total births in the city of Los Angeles in 1938, 16,314 or 81.0 per cent were delivered in hospitals of all classes and in maternity homes, of whom 13,188 or 65.5 per cent, were delivered in hospitals approved by the American Medical Association Council of Medical Education and Hospitals and 3,126 or 15.5 per cent were delivered in other hospitals or maternity homes, which by law operate under the supervision and license of the State Department of Public Health. Of the total number of 20,127 births in the city of Los Angeles in 1938, 15,642 were resident and 4,485 were nonresident as to residency of mothers and 19,661 were live births while 466, or 2.3 per cent, were stillbirths.

The following table lists the various hospitals and maternity homes in the city of Los Angeles and the number of births taking place in each, for the fiscal year ended June 30, 1938:

Name of Hospital	Number of Births
American Hospital	195
Angelus Hospital	163
Bon Air	237
California Lutheran Hospital	1,191
Cedars of Lebanon Hospital	1,004
Doctor's Hospital	528
Dunbar Hospital	6
Florence Crittenden Home	57
French Hospital	317
Good Samaritan Hospital	673
Hollywood Community Hospital	1
Hollywood Presbyterian	952
Los Angeles Japanese	111
Lincoln Hospital	180
Los Angeles County General Hospital	4,065
Los Angeles Lying-In Hospital	112
Maternity Cottage	595
Methodist Hospital	1,152
Monte Sano Hospital	234
Pioneer Hospital	250
Pahl Hospital	75
Queen of Angels Hospital	886
Rice Maternity	209
Salvation Army Hospital	157
Southwest General	216
Southwest Maternity	252
St. Vincent's Hospital	858
St. Vincent's Maternity	14
White Memorial Hospital	984
Valley Hospital	191
Terry Sanitarium	20
Wilshire Hospital	275
Griffith Park Maternity	150
Georgia Street Receiving Hospital	3
Olive View Sanatorium	1
	<hr/> 16,314

The percentage of births in the city of Los Angeles taking place in hospitals is definitely higher than the average for other large cities in the United States. It is also higher than the generally accepted minimum standard, 50 per cent. In Los Angeles during the fiscal year 1938, 81 per cent of the total number of births took place in hospitals and maternity homes and 65 per cent took place in approved hospitals. Of the 3,813 remaining births, 3,347 or 16.6 per cent, are recorded as

taking place at home; of the total of 3,813 births not occurring in hospitals, 773 or 20.3 per cent were under the medical and nursing attendance of the maternity center. Physicians attended 19,551 or 97.1 per cent of the total number of births and 486, or 2.4 per cent were attended by midwives while 90 or 0.5 per cent were unattended. This is an excellent showing particularly in view of the negro, Mexican and oriental components of the city's population in which groups, owing to their inclinations, midwifery practice and home deliveries usually attain much greater proportions.

All cases admitted to the maternity center clinic receive a Wassermann; 47 per cent of the cases were admitted in the fifth and earlier months of pregnancy. No data was available as to the distribution of the positives by months of pregnancy, but a total of 560 out of 2,505 admissions were reported, giving an indicated infection rate of 22.3 per cent. While treatment is made available to all positive Wassermann clinic cases, only 161 clinic cases were recorded as being under treatment at the maternity center, 51 of which discontinued treatment without permission; no data was obtainable as to the month of pregnancy treatments were begun, or discontinued. Likewise there was available no data respecting these matters as regards the 88.5 per cent of the total number of deliveries in the city of Los Angeles for the fiscal year 1938, representing other than maternity center clinic cases.

However, the State of California enacted in 1939 legislation requiring prenatal Wassermann and this will provide some data in the future. The city health department should have available for every birth reported in the city, data respecting month of gestation the Wassermann test of mother is made and results thereof, together with data as to month of pregnancy treatment was inaugurated and length of that treatment.

Of the total of 20,127 births occurring in the fiscal year 1938 in the city of Los Angeles, 2,505 mothers received ante-partum care at the maternity center. The records of these maternity center cases have not been segregated for the year as to the month of pregnancy in which admitted. However, a study for the first six months, July 1 to December 31, 1937, was made by the public health nursing division of the city health department which resulted in the following data in this regard for that portion of the fiscal year. Inasmuch as the number of cases studied, 1,225, is almost one-half of the total clinic admissions (2,505) for the entire fiscal year, it may be assumed that the percentages are fairly representative.

	Number	Per Cent
Total admissions July 1-December 31, 1937-----	1,225	100
Admissions prior to fourth month of pregnancy-----	294	24
Admissions in fourth and fifth month of pregnancy---	282	23
Admissions in sixth and seventh months of pregnancy--	245	20
Admissions in eighth and ninth months of pregnancy--	270	22
Admissions: post-partum -----	134	11

It will be noted that 821 cases, or 67 per cent of the total were admitted to the maternity center clinic prior to the last three months of pregnancy, which is an excellent attainment, in so far as the limited maternity center case group is concerned. That group, however, only represents 12.4 per cent of the total number of deliveries occurring in the entire fiscal year in the city of Los Angeles, of which 8.1 per cent

received ante-partum care at the clinic; no data was obtainable respecting the ante-partum care afforded to the remaining 87.6 per cent.

Of the 3,813 deliveries occurring at home, 57 per cent were attended by private physicians but no data is available as to the amount of ante-partum care these cases received; 20.3 per cent (767) were attended by physicians and nurses from the maternity center, 67 per cent of which, or 13.6 per cent (519) of the whole number delivered at home, received ante-partum clinic care prior to the last three months. The generally accepted minimum standard for official ante-partum activities would have required that at least 954 cases receive ante-partum care prior to the last three months of pregnancy, in reference to the total number of deliveries taking place at home (3,813). However, 4.4 per cent additional received ante-partum care in the last three months of pregnancy or together, 18 per cent of the total home deliveries received some ante-partum care at the maternity center clinic.

Of 2,505 admissions to the maternity center clinic, 1,738 were delivered at the Los Angeles County General Hospital, of which 67 per cent of the clinic cases or 1,165 cases received ante-partum clinic care prior to the last three months of pregnancy and a total of 89 per cent or 1,546 cases received some ante-partum care. The number of clinic cases delivered in the hospital represents 10.6 per cent of the total hospital deliveries in the city of Los Angeles during the fiscal year 1938; of this total 7.1 per cent (1,165) received ante-partum care prior to the last three months of pregnancy at the maternity center clinic and 2.4 per cent (381) received ante-partum clinic care prior to delivery; no data was obtainable as to how much ante-partum care was received by the remaining 89.4 per cent of the hospital deliveries. The present generally accepted minimum standard of ante-partum care is that not less than 50 per cent of all deliveries occurring in the city receive ante-partum care prior to the fifth month of pregnancy.

The triennial average neonatal death rate in the city of Los Angeles (stillborn and infants under one month) is 30.6 per 1,000 live births. According to generally accepted standards for official ante-partum field nursing activities in cities having a triennial average neonatal rate between 26 and 35, 30 per cent of the mothers for all registered births should have received such services. In the city of Los Angeles, only 13.3 per cent were reported to have received these services, indicating that these activities are carried on at only 40 per cent of the minimum volume required under the conditions. Of 20,127 births taking place in Los Angeles in the fiscal year 1938, 2,667 mothers received field nursing ante-partum supervision; a total of 7,523 home visits were made to these cases. According to generally accepted standards these cases should have received a minimum of four visits each, or a total of 10,668 visits.

At the same time, only 954 deliveries were carried on the register for official field nursing post-partum visits; it is assumed that 767 maternity clinic home delivery cases were included in the number registered. In addition 471 cases received post-partum home visitation by unofficial agencies. The triennial average neonatal rate for the city of Los Angeles is 30.6 and according to accepted standards a minimum of 1,144 or 30 per cent of the 3,813 home deliveries, should have received such post-partum home nursing supervision.

These 954 cases received a total of 6,900 home post-partum visits from regular and WPA staff nurses; in addition 3,822 home post-partum visits were made by student nurses; the 471 cases cared for by unofficial agency, had 1,612 home nursing visits in post-partum supervision. The 954 cases on the official post-partum nursing supervision register received an average of 11.2 visits per case while the 471 cases receiving other post-partum care received 3.4 visits per case. Cases registered for official post-partum nursing supervision, regularly receive a daily visit for the first six days, additional visits on the 8th, 10th, 16th and 30th day (a total of 10 visits) and a clinic final post-partum examination in the sixth week. Cases cared for by unofficial agencies are scheduled to receive a first visit within 48 hours and additional visits on alternate days until the 10th day, a total of 5; the average of 3.4 visits indicates that the schedule is not maintained. However, both official and unofficial post-partum nursing supervision exceeds the accepted minimum of three visits per case.

It can probably be safely assumed that reasonably adequate post-partum care is received by hospitalized cases prior to their discharge but assurance is needed respecting post-hospital care; probably too, more or less adequate post-partum care can be assumed to be rendered to the majority of cases attended by doctors of medicine, but here again, there is no data assuring that such is the case. It is obvious that recorded information should be available in the city health department as to the amount of ante-partum and post-partum care received by the remaining 89.4 per cent of all hospital deliveries and the remaining 87.6 per cent of all deliveries at home, for which data is not at present obtainable. Such information is essential to the intelligent direction of a maternal hygiene program, both as to field activities and as to educational program.

It is apparent that the maternal hygiene nursing is deficient in ante-partum activities as to number of cases and that on the other hand, too much emphasis is placed under the circumstances upon post-partum activities in terms of number of visits. If sufficient personnel were available, the existing post-partum nursing supervision plan would be ideal, but it should reach larger numbers.

Recommendations

It is recommended that:

1. A new division of maternal and child hygiene comprising three subdivisions (maternal hygiene, infant child hygiene, preschool child hygiene) be created in the city department of health; that the maternal public health activities of the former maternal health division be restored in this new division and that the present child hygiene division be consolidated into the new division.

2. A director for the new division be obtained who meets the qualifications prescribed by the Conference of State and Territorial Health Officers for staff positions in units having over 50,000 population and who has had special training and experience in maternal and prenatal care and preferably also some experience in preschool activities.

3. The activities of the new division in maternal care include all phases of an adequate program excepting only hospitalization.

4. Hospitalization continue to be accomplished by the Los Angeles County General Hospital and outside voluntary agencies and that rules of eligibility for county hospitalization be amended to reflect less consideration of questions of citizenship and residence, and to reflect more consideration of public health needs; also that provision be made to admit part pay patients to hospitals maintained by Los Angeles County, according to ability to pay.

5. The policy be continued whereby hospital beds are freely available regardless of ability to pay or residence eligibility for all deliveries that are problem cases or wherever pregnancy might be complicated by serious conditions which may become dangerous to the life of mother and/or child.

6. Trained obstetricians be provided on the staff of the new division of maternal and child hygiene of the city health department in sufficient numbers to adequately furnish needful mothers, especially those not hospitalized, all necessary and adequate prenatal, delivery and post-natal service; the chief of the maternal subdivision should be full-time and should spend all of his time in these activities and be assisted by part-time conference physicians, obstetricians, internes, externes, and senior medical students as well as a staff of consultants as needed.

7. The maternity center be removed from the administration building of the city health department to adequate quarters suitably located and that the clinic activities be more decentralized through the additional establishment of prenatal clinics in the several health district offices and in various sections of the city, easily accessible to the population groups needing service.

8. Routine serology be continued on all prenatal clinic and delivery admissions, and that greater emphasis and insistence be placed on early treatment of all admissions showing positive Wassermann; all admissions to service should be conditioned upon acceptance of all phases of that service deemed necessary.

9. Greater emphasis should be placed upon prenatal activities even if circumstances temporarily force some curtailment of the ideal maximum post-partum care program now followed.

10. An adequate record system conforming to generally accepted practice in other cities, states and national agencies, be instituted and sufficient clerical personnel and forms be provided for the purpose.

11. Means be developed and instituted whereby the city health department will also have similar records respecting the prenatal, delivery and post-partum care afforded to all pregnancies in the city under private medical care.

12. Proper adjustment of crude figures and rates be made, deducting all nonresident cases occurring in the city and adding all city resident cases occurring outside the city.

Division of Child Hygiene

The division of child hygiene is in charge of a full-time director, designated as an assistant health officer, who is a doctor of medicine and a pediatrician. The director is assisted in the administration of the division by one general clerk.

The well baby conferences are staffed by full-time and part-time physicians in addition to the director as follows:

- 3 part-time physicians @ \$150 per month.
- 3 part-time conference physicians @ \$5 per clinic session.
- 3 full-time district health officers.
- 1 full-time physician loaned for conferences from the division of quarantine and morbidity of the city health department.

The qualifications required of conference physicians are: a degree of doctor of medicine, a license to practice in California and special training and experience in pediatrics.

The activities of this division are almost exclusively centered about the well baby conferences of which there are twenty-two located in various sections of the city. In the annual report of the work of the division for the fiscal year 1938 the director states that trained pediatricians assisted by public health nurses, instruct mothers in matters of hygiene, feeding and general care. Minor disturbances are treated at the well baby conferences, while acutely ill children are referred elsewhere for treatment.

The conferences, on the whole, are strictly limited to well babies; mothers are instructed not to bring babies with fever, skin eruptions or any sickness to these conferences. The conference nurse inspects all babies upon admission and should a sick baby with fever or skin eruption or other symptoms appear for the conference, it is immediately isolated from the other babies and attempts are made early to bring the case to the attention of the attending conference physician who refers the case to the family physician if financially able or to the clinic of the Los Angeles County General Hospital if eligible, or if believed ineligible to some other pediatric clinic which accepts those ineligible for admission to clinic service or hospitalization at the Los Angeles County General Hospital.

Babies are admitted from birth and retained in these conferences through the second year. At these conferences the babies are weighed, measured and examined from time to time for the purpose of supervising natural growth and development. Preschool, or runabouts, over 2 years of age are examined at the well baby conferences by special appointment only.

Immunization against diphtheria is a major activity of this division, both at these conferences and also in the public schools and parochial schools. Vaccination against smallpox is offered at all conferences. Vaccination against whooping cough is done upon request on a very limited scale. Mothers are urged to have their babies immunized against diphtheria after the sixth month and vaccinated against smallpox between the sixth and twelfth months, preferably six weeks or so after diphtheria immunization. At present, typhoid vaccination is not done since typhoid fever is not an important problem in the city of Los Angeles. However, should immunization against typhoid fever be requested the case is sent to the division of vaccination of the city health department for this service. There are some other services rendered at these conferences in addition to advice and guidance in infant feeding and the performance of immunization, such as prescribing for skin disturbances and dispensing nose drops, cod liver oil, yeast and ferrie ammonium citrate.

The following is a list of the well baby conferences held by the division of child hygiene throughout the city of Los Angeles, giving the location of each and the facilities available for the conference.

Location of Conference	Quarters	Other Uses	Adequacy
Avalon	Rented	Nurses' district headquarters	Relatively adequate (needs repairs)
Bernal	Rented	Nurses' district headquarters	Inadequate
Cummings	Rented	Nurses' district headquarters	Inadequate
Darwin	Rented	Nurses' district headquarters	Inadequate
Eagle Rock	Woman's Club	Club activities	Adequate
Echo Park	Community Play-ground Bldg.	Community activities	Adequate
Highland Park	Community Play-ground Bldg.	Community activities	Adequate
Hollywood	Rented	Nurses' district headquarters	Relatively adequate
Manchester	Community Play-ground Bldg.	Community activities	Adequate
North Hollywood	Church	Church activities	Inadequate
Pacoima	Rented	Other health activities	Adequate for the small group served
Palo Verde	Church	Church activities	Most inadequate
San Pedro	Rented	Other health activities	Adequate
Temple	Central Health Building	Available as needed (Lectures-student nurses)	Inadequate (arrangement)
Tujunga	Rented	Other health activities	Adequate for the small group served
Van Nuys	City Hall	Other health activities	Adequate
Venice	City Hall	Other health activities	Inadequate
Vineyard	Community Play-ground Bldg.	Community activities	Adequate
Watts	City Hall	Other health activities	Adequate
West Los Angeles	City Hall	Other health activities	Adequate
West Vernon	Rented	Nurses' district headquarters	Inadequate
Wilmington	Rented	Other health activities	Adequate

The following table gives the total registered case load for each well baby conference. The division of child hygiene carries as infants, cases up to two years of age; this has been broken down to show cases under one year of age in order to afford comparison with similar activities in other cities. The table also gives the number of cases in each age group carried over from the preceding fiscal year:

Conference	Cases Carried Over From Preceding Fiscal Year		Total Case Load	
	Under 1 Year	1 to 2 Years	Under 1 Year	1 to 2 Years
Avalon -----	496	219	1,234	303
Bernal -----	193	92	506	138
Canoga Park* -----	16	8	17	8
Cummings -----	290	135	688	184
Darwin -----	146	78	382	112
Eagle Rock -----	85	35	227	62
Echo Park -----	216	142	623	183
Highland Park -----	221	85	527	131
Hollywood -----	146	87	426	140
Manchester -----	255	166	676	253
North Hollywood -----	52	29	129	52
Pacoima -----	37	3	101	10
Palo Verde -----	23	15	43	16
San Pedro -----	96	112	279	143
Temple -----	321	137	1,032	221
Temple Immunization -----	---	---	---	---
Tujunga -----	7	10	24	16
Van Nuys -----	67	42	200	66
Venice -----	103	99	329	133
Vineyard -----	162	157	413	233
Watts -----	241	88	483	117
West Los Angeles -----	69	37	234	57
West Vernon -----	483	252	1,384	406
Wilmington -----	97	63	230	83
Totals -----	3,822	2,091	10,187	3,067

* Closed. No place to hold conference.

The following table gives the number and schedule of the well baby conferences and the average baby attendance at these conferences during the fiscal year ended June 30, 1938. It has been noted heretofore that the child hygiene division of the city health department includes children up to 2 years of age as infants whereas the almost universal and generally accepted practice is to end infancy at 1 year of age and to classify children 1 to 4 years old (inclusive) as preschool or runabouts. In order to make the information contained in this table comparable with reports of similar activities elsewhere, the attendance of babies under two years of age as recorded in the division of hygiene records has been broken down to also show separately the component attendance of babies under 1 year of age.

Places of conferences	Number of conference sessions	Average attendance per conference			Frequency of conferences	Number physicians at conference
		New infants under 2 years	New infants under 1 year	Average total attendance		
Avalon.....	151	5.4	5.0	43.5	Thrice weekly...	1
Bernal.....	52	6.9	6.0	45.6	Once a week.....	1
Cummings.....	101	4.4	3.9	41.4	Twice weekly.....	1
Darwin.....	49	5.5	4.8	40.0	Once a week.....	1
Eagle Rock.....	51	3.1	2.8	25.8	Once a week.....	1
Echo Rock.....	50	8.8	8.1	70.0	Once a week.....	2
Highland Park.....	50	7.0	6.1	49.4	Once a week.....	1
Hollywood.....	51	6.4	5.4	52.4	Once a week.....	1
Manchester.....	50	10.0	8.4	77.0	Once a week.....	2
North Hollywood.....	50	2.0	1.5	23.0	Once a week.....	1
Pacoima.....	24	2.9	2.7	14.1	Twice monthly.....	1
Palo Verde.....	12	1.6	1.6	10.0	Once a month.....	1
San Pedro.....	52	4.3	3.5	45.0	Once a week.....	2
Temple.....	100	8.0	7.1	36.7	Twice a week.....	1
Tujunga.....	11	2.0	1.6	10.2	Once a week.....	1
Van Nuys.....	49	3.2	2.7	24.2	Once a week.....	1
Venice.....	51	5.1	4.4	31.6	Once a week.....	1
Vineyard.....	50	6.7	5.0	58.3	Once a week.....	2
Watts.....	50	5.4	4.8	43.1	Once a week.....	1
West Los Angeles.....	50	3.7	3.3	29.0	Once a week.....	1
West Vernon.....	154	7.0	6.0	48.6	Thrice weekly.....	1
Wilmington.....	50	3.0	2.6	32.6	Once a week.....	1
Totals.....	1,357	5.1	4.4	37.0		

It has been noted previously that under certain circumstances children of the preschool or runabout age group (2-5) are also received at these well baby conferences by special appointment; there were also 1,319 cases in this age group which were received at the 1,357 well baby conferences held during the fiscal year 1938, or an average of almost one per conference.

According to the generally accepted standards, the activities of the child hygiene division conform very favorably for infant care as regards its well baby conferences. A total of 10,187 infants registered at these conferences made 45,791 visits or a ratio of 4.5 visits per case registered.

In the following table will be shown the total number of live births in the city of Los Angeles for the three fiscal years 1936-1938 and the crude birth rate; as has been shown in the discussion of vital statistics, the adjusted birth rate and number of births and deaths in Los Angeles differs but little from the crude figures. The city health department

keeps so-called adjusted figures, but these are not acceptable for, while nonresident births are subtracted from the crude figures, resident births occurring outside of the city are not added. The table also shows the total number of infant deaths (under 1 year) occurring in the city during the three fiscal years 1936-1938 and the crude infant death rates. Here again, total figures and crude rates are used for the same reasons.

Fiscal Year	Live Births		Infant Deaths	
	Number	Rate	Number	Rate
1936 -----	17,100	13.1	953	55.7
1937 -----	18,374	13.9	1,000	54.4
1938 -----	20,127	14.2	952	47.3
Triennial average -----	18,534	13.7	968	52.5

It will be noted that the past three fiscal years (1936, 1937, 1938) show an appreciable decrease in infant deaths under 1 year with a proportionate drop in infant mortality rates.

This reflects favorably upon the fact that in the fiscal year 1938, 50.6 per cent of all infants born in the city of Los Angeles (and 70.0 per cent of those born in the city to residents) were registered during the first year of life in the well baby conferences conducted by the division of child hygiene. Proper medical supervision of feeding, growth and general care has done much to preserve and maintain the health of these babies. Danger signals which might prove disastrous to the life and health of the baby have been recognized and corrective measures were carried out either through the conferences or by referring these cases to private physicians or to the various clinics of the city for treatment. The generally accepted standard would require 50 per cent of all live births to be under the care of private physicians or official well baby conferences having a physician in attendance, in cities in which the properly adjusted infant death rate is 31-50 and 65 per cent under such care where the rate is 51-75. Properly adjusted birth and infant death rates are not available, but it appears that this standard is somewhat exceeded in the city of Los Angeles, especially when the unknown number of such infants under the care of private physicians, is considered.

The following table taken from the annual report for 1938 summarizes the activities of the division of child hygiene for the fiscal year 1938, in the infant and preschool or runabout age groups, in terms of conference attendance and immunizations accomplished.

The child hygiene division has remarkably neglected the preschool child. During the fiscal year 1938, of a possible 91,010 children only 1,319 children between the ages of 2 and 6, are recorded as having received any attention and these only by appointment at the well baby conferences. The number of preschool children registered should be, according to accepted standards, about 30 per cent of the preschool population (27,000) and the performance showed only 1.45 per cent were registered at these conferences and these apparently were single visits.

It would appear that the division of child hygiene should accomplish considerably more than mere pediatric and immunization services in well baby conferences; these are quite well conducted but why stop

Conference	Num-ber confer-ences held	New infants registered		Return visits		Total	Runabouts registered*			Diphtheria				Small-pox vaccinations done	Number immu-nized	Total injec-tions	Whooping cough
		Under one year	One to two years	Old and new	Total		Old	New	Total	Total number children immun-ized	Total Schicks	Schick readings					
												Neg.	Pos.				
Avalon.....	151	738	84	5,745	6,567	6	44	50	1,471	757	0	8	2	463	0	0	
Bernal.....	52	313	46	2,017	2,376	0	16	16	704	351	0	0	0	262	0	0	
Canoga Park ^a	1	1	0	5	6	0	1	1	0	0	0	0	0	0	0	0	
Cummings.....	101	398	49	3,743	4,190	3	18	21	625	307	0	0	0	266	0	0	
Darwin.....	49	236	34	1,682	1,932	0	29	32	335	157	0	1	0	177	0	0	
Eagle Rock.....	34	236	27	1,141	1,310	15	25	40	251	141	56	27	4	70	0	0	
Echo Park.....	51	142	41	3,054	3,502	2	14	16	516	258	0	1	0	225	0	0	
Highland Park.....	50	407	46	2,118	2,470	12	24	36	514	260	0	0	0	141	0	0	
Hollywood.....	52	280	53	2,414	2,747	15	81	96	442	231	0	4	1	142	0	0	
Manchester.....	50	421	87	3,344	3,832	12	53	65	906	488	0	3	0	185	0	0	
North Hollywood.....	50	77	23	1,033	1,153	136	54	190	135	65	0	6	0	60	0	0	
Pacoima.....	24	64	7	270	341	15	1	16	132	81	0	1	0	30	0	0	
Palo Verde.....	12	20	1	100	121	0	3	3	73	42	1	0	0	8	0	0	
San Pedro.....	52	183	31	1,921	2,135	1	1	2	465	254	174	125	17	128	0	0	
Temple.....	100	711	84	2,874	3,669	15	85	100	1,491	773	577	373	102	337	0	17	
Temple Immuniz.....	47	0	0	0	0	0	0	0	0	0	0	0	0	0	244	698	
Tujunga.....	11	17	6	90	113	16	15	31	61	30	0	0	0	20	0	0	
Van Nuys.....	49	133	24	1,030	1,187	126	74	200	214	105	21	15	3	111	0	0	
Venice.....	51	226	34	1,375	1,635	0	0	0	346	181	0	0	0	104	0	0	
Vineyard.....	50	251	76	2,591	2,918	44	67	111	648	343	0	19	2	211	0	0	
Watts ^b	50	242	29	1,888	2,159	0	0	0	418	231	10	7	4	129	9	29	
West Los Angeles.....	50	165	20	1,299	1,454	14	16	30	292	152	32	20	8	55	0	0	
West Vernon.....	154	901	154	6,431	7,486	82	181	263	1,805	933	0	24	0	520	0	0	
Wilmington.....	50	133	20	1,477	1,630	0	0	0	340	186	91	62	22	0	0	0	
Totals.....	1,357	6,365	976	47,632	54,973	517	802	1,319	12,245	6,326	971	696	166	3,644	253	744	

^a Closed. No place to hold conference.

^b Mantoux tests:
 Temple..... 8
 Watts..... 11
 Total..... 19

^c Not regularly admitted to well baby conferences; these cases were single visits by special appointment.

at the age of 2 when there are nearly a hundred thousand additional children of preschool age, 30 per cent of whom at least should be registered in child health conference having an annual attendance of at least 1.5 times the number registered.

There is a definite gap in health protection of the child between the well baby conference service rendered by the division of child hygiene of the city health department and the service rendered in public schools by the Health Service Section in the Department of Education. The preschool child should be protected in so far as practicable before admission to school by immunization against communicable diseases and his physical fitness should be safeguarded through detection and remedying of defects. Correction of remediable defects, if accomplished early, will make a better student and a better adult. As it is, the preschool child usually waits until the school health service finds these defects some time later after admission to school. The city health department can accomplish a great deal to bridge this gap and increase its public health activities among the preschool children. The health of the child, through coordinative and cooperative agreements between the city health department and the city school health service should be safeguarded from birth to entrance to school, throughout its school life.

Additional discussion regarding public health nursing and communicable disease control activities affecting these age groups will be found elsewhere in this report under their respective headings.

The division of child hygiene of the city health department has printed pamphlets prepared for distribution as follows:

Name	Number
Care of Your Baby-----	5,000
Additional Food for Breast or Bottle-fed Baby-----	10,000
Feeding Schedules for Infants One to Three Months of Age-----	5,000
Feeding Schedules for Infants Three to Five Months of Age-----	5,000
Feeding Schedules for Infants Five to Nine Months of Age-----	5,000
Feeding Schedules for Infants Nine to Twelve Months of Age-----	5,000
Diet at One Year-----	5,000
Diet for Fourteen Months to Two Years-----	5,000
Diet for Two to Five Years-----	5,000
Preparation of Foods for Infants and Young Children-----	5,000
Other literature offered for distribution:	
U. S. Government pamphlets-----	1,000
Infant Care	
The Child from One to Six	
Prenatal Care	
Are You Training Your Child to be Happy?	
Metropolitan Life Insurance Co. pamphlets:	
Communicable Disease Control-----	1,000
Facts About Diphtheria-----	1,000

No record has been kept by the division of child hygiene as to the amount of literature distributed during the fiscal year 1938. The supply listed above is stated to take about one to two years to distribute. Other educational activities comprise the following:

Lectures -----	17
Motion pictures -----	0
Newspaper articles -----	0
Publications -----	0
Radio talks -----	3

Recommendations

It is recommended that:

1. The present child hygiene division be consolidated with the new division of maternal and child hygiene and that the present director of the child hygiene division be continued as chief of the infant child hygiene subdivision of the new division.

2. A new subdivision for the administration of preschool child hygiene activities be established and a chief obtained who has had sufficient training and experience in public health and preschool activities to formulate and prosecute an adequate program.

3. The excellent program in infant child hygiene for the safeguarding of health and growth and the protection by immunization and otherwise against preventable diseases among infant children during the first two years of their lives, be continued.

4. Additional medical assistance be added to the infant and child hygiene staff either through voluntary pediatricians or by adding more conference physicians in order to allow more time for health instruction to the mother and for periodic check-ups.

5. Blood serology be accomplished routinely on all mothers who failed to have this done during the prenatal period; these cases should be referred to the laboratory division for such serological tests, or if necessary for the determination of the presence or absence of syphilis, to the venereal disease division.

6. An adequate record system conforming to accepted practice in other cities, states and national agencies be adopted so as to segregate records for infants from one month to one year of age and records for one to two years of age, and that sufficient clerical personnel be provided for the purpose.

7. Provision be made for inclusion of the preschool child (run-arounds) in the health program and thus bridge the present gap of health protection existing between the ages of two and school age. An adequate program should be formulated and adopted for the examination and the immunization as necessary of all children just prior to their admission to school; the correction of all remediable defects found should be urged and followed up in children before regular school educational courses begin.

8. The school health program in all parochial and other than public schools should be expanded; an adequate program should be formulated, adopted and administered by the preschool child subdivision.

9. The preschool child subdivision be the responsible agency for the coordination of the preschool and school activities of the city health department with those of the Health Service Section of the Department of Education in the city public schools, and that more intimate cooperation in these interrelated activities be accomplished.

10. An adequate record system for recording the health history of the child from birth through to school age be devised and adopted conforming to accepted practices in other cities, states and national agencies; these records and school health records should be designed so as to be integrated and continuous; sufficient clerical personnel should be provided for these purposes.

SCHOOL CHILD HYGIENE

By MEDICAL DIRECTOR F. A. CARMELIA and P. A. SURGEON F. W. KRATZ,
U. S. Public Health Service

The child hygiene activities in the school age groups in the city of Los Angeles for most part are being conducted by the Health Service Section of the Los Angeles School District in the public elementary and high schools and to small extent in parochial schools by the division of child hygiene of the city health department. The activities of the city health department as regards the school age groups in public schools are restricted for all practical purposes to acute communicable diseases and even this is by "remote control"; there was much talk of cooperation but little evidence of effective participation. Inasmuch as this survey is concerned with activities of the city health department, only brief mention of the public health activities in the vast public school system will be made in this discussion.

Whether by mutual consent or for other reasons, the field of activities of the city health department in the school child age group for other than communicable disease control purposes, has been restricted to private schools which are attended by some 15,000 children; there are 62 denominational (church) schools and 64 non-denominational private schools in the city of Los Angeles. Practically all these activities are carried on only in parochial schools of the Catholic faith, of which there are 53 attended by 14,069 pupils.

During the fiscal year 1938, the physical examinations in the parochial schools were carried out as follows: the lowest, middle and highest in the elementary school groups (1st, 4th and 8th grades) were examined. In addition, all of the high school girls in all grades (10th-12th) and only the high school boys in 10th grade, were examined. The total number of children examined during the year was 6,161.

Number of children found free from defects.....	*
Number of children found with defects.....	*
Number of defects found.....	4,252
Number of children with some or all defects corrected.....	*
Number of defects corrected.....	1,059

* Information not available.

The city health department's immunization program in schools is carried out by the division of child hygiene in parochial schools along with these health examinations. The conference physician of the division of quarantine and morbidity is loaned to the division of child hygiene to conduct these physical examinations in parochial schools. The records of these examinations are kept at the parochial schools and are kept current by the public health nurses of the nursing division. The record forms are printed and provided by the parochial schools. Whenever practicable corrections are recommended to be made by the private family physician; if the school child is from a family in the lower economic brackets who is unable to pay, the child is referred to one of the following for corrective medical care: Santa Rita Clinic,

All Nations Clinic, White Memorial Clinic, or Los Angeles County General Hospital clinics.

It was stated that up to the present very little health education has been taught in the parochial schools but attempts are now being made to train the teachers so that the pupils may have the benefit of modern health instruction to help maintain personal hygiene and normal body growth, and to help prevent preventable diseases.

Such a poor showing in school child hygiene activities on the part of the city health department has not inspired nor encouraged their participation in these proper activities in the public schools. Without doubt, it is the legal responsibility and duty of the health department to furnish public health services to all schools. The legal responsibility and duty of public school authorities is and should be limited to educational instruction and supervision of the physical and mental development of their pupil charges, but this authority has been stretched (and possibly exceeded) to include a general public health program in preventive and even curative medicine.

No question but that the need did, and does, exist and, in the lack in the past of an adequate public health program adequately prosecuted by the public health agencies, it was only natural that the public school system which had reached an advanced stage of development should develop an agency to meet those needs in the schools. For one thing, the educational authorities in general have been far-sighted and have succeeded in developing an independent, practically autonomous administrative organization which has been successful in getting funds where other agencies fail.

Nevertheless, it is more expensive for incomplete and self-limited public health activities to be carried on by school authorities and it results in considerable duplication of health work, division or invasion of public health authority and responsibility, and lack of consistent program. Furthermore, laws have not vested, and should not vest, in departments of education, authority which would permit their carrying on a complete public health program which must extend into the home and beyond the confines of the school buildings and ground, and which must not be limited to the nine- or ten-month school year.

Under existing circumstances there should be at the very least a formal, standing joint committee representing the city health department and the Department of Education whose function and duty would be to integrate and coordinate the overlapping activities of the two departments, to promote cooperation between them, and to clear matters of mutual interest. The public health agency is more likely to be amenable to such a suggestion, for cooperation is an important stock in trade of these agencies and public health education and training develop and promote such inclinations; however, autonomy has been the goal and watchword in educational circles and it has been the experience of the surveyor that the training in and practice of pedagogy does not seem to encourage outside cooperative arrangements which might in any way vitiate their absolute control; nevertheless, the proposal should be given proper and serious consideration by all concerned.

Of course, the ideal development would be to consolidate the existing public health activities of the Health Service Section of the Depart-

ment of Education with the proposed new maternal and child hygiene division of the city health department, as a separate added subdivision—the school child hygiene subdivision—which would give year around service, properly integrated with preschool child hygiene and home public health nursing services, acute communicable disease control, tuberculosis control, and so on. School hygiene can not be effectively carried on without such integration, best accomplished under one single responsibility and direction.

The Los Angeles School District is greater in area than the city of Los Angeles due to the inclusion of a number of neighboring communities for public school purposes only. The city health department is responsible legally for the health of the school children within the city limits of Los Angeles and the Los Angeles County Health Department is responsible for the health of the children in county jurisdiction. The following table gives the enrollment reported in the public schools of the Los Angeles school district for the fiscal year 1938:

Kindergarten	23,047	
Elementary—grades 1-9	198,976	
High school—grades 10-12	87,795	
		309,818
Trade extension classes	6,877	
Junior college	5,197	
		12,074
Day and evening adult classes		111,039
Total		432,931

The following table summarizes the reported enrollment in all schools in the city of Los Angeles only:

Grade	Public	Private and Parochial	Total
Kindergarten	23,047	269	23,316
1st-6th grades	108,711	10,536	119,247
7th-9th grades	70,729	4,363	75,092
10th-12th grades	47,857	2,439	50,296
Total	250,344	17,607 ^a	267,951
Number of schools	293	126 ^a	

^a Includes 14,069 pupils in 53 parochial schools of Catholic faith, and 2,586 pupils in 2 Lutheran and 7 Seventh Day Adventist parochial schools, and 952 pupils in 64 private non-denominational schools.

The school child health services being rendered by the child hygiene division of the city health department in the 53 parochial schools of the Catholic faith has already been presented. It was reported that some degree of health service was also being rendered in the seven denominational schools of the Seventh Day Adventists by private physicians employed for the purpose, but statistical data was not available in evidence of the character and scope of these services and there appeared to be little or no coordination or supervision thereof by the city health department.

The Health Service Section of the Department of Education organized to render school child health services in the public schools of the Los Angeles School District is headed by a doctor of medicine as director and comprises 212 regular and 28 substitute employees; of the 212

regular employees, 128 are full-time for the ten-month school year. The 212 regular employees are classified as follows:

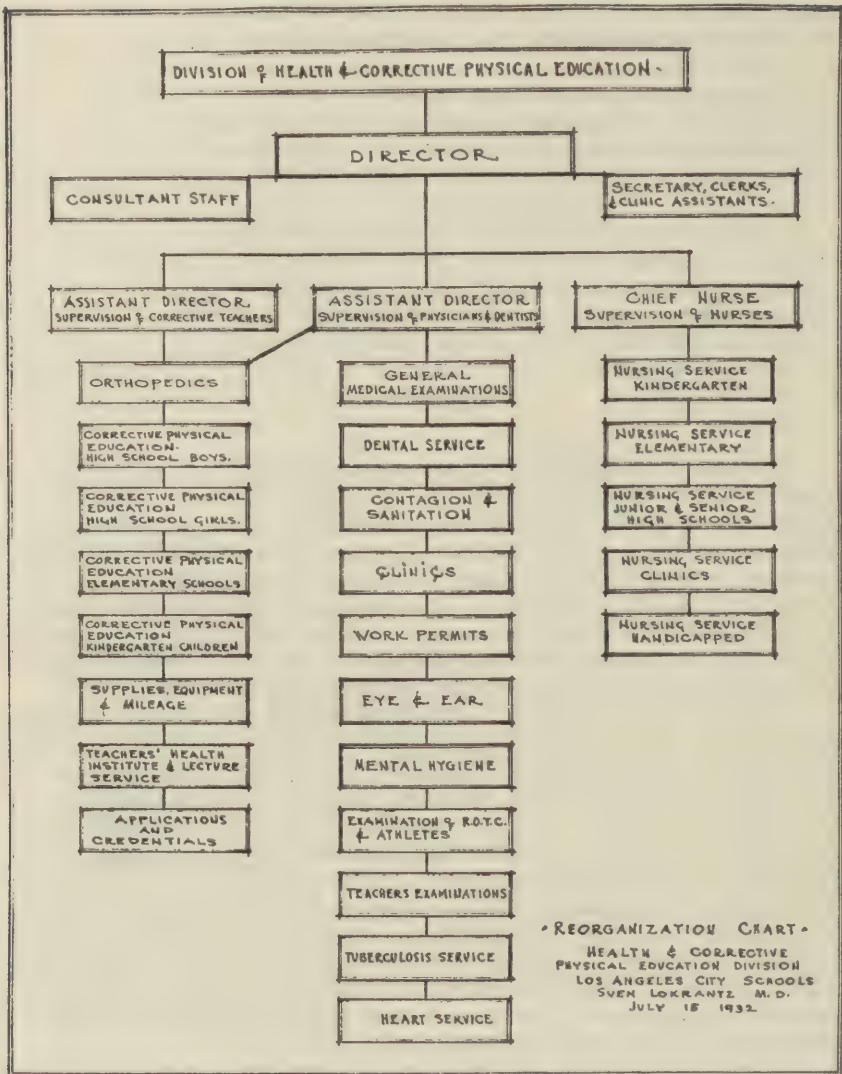
- 1 Director (M.D.)
- 2 Assistant directors (one M.D.)
- 50 Physical inspectors (physicians) (45 part-time)
- 20 Physical inspectors (dentists) (19 part-time)
- 19 Assistant physical inspectors (dental assistants) (18 part-time)
- 85 Physical inspectors (nurses)
 - 2 Physical inspectors (optometrists) (part-time)
- 6 Technicians
- 2 Secretaries
- 15 Clerks
 - 1 Clinic social service worker (clerk)
 - 4 Clinic matrons
 - 2 Custodians
 - 3 Watchmen

The school hygiene work of the health service section of the Los Angeles school district is organized and carried on under authority of Chapter IV (Health Supervision) of the School Code of the State of California, 1937. Section 1.100 of Chapter IV thereof provides that boards of trustees of school districts shall have the power and it shall be their duty to give diligent care to the health and physical development of pupils. The apparent intent of this section is to charge the board to protect the health of pupils against school environment inimical to their health and to supervise their physical development.

Article 2 of Chapter IV authorizes boards to appoint physical inspectors for the purpose of discharging the duty enjoined in section 1.100 of the code, provided that funds ear-marked for payment of teachers' salaries or libraries may not be utilized for the payment of the salaries of physical inspectors. Section 1.110 limits the employment of physical inspectors to physicians, oculists, dentists, nurses, dental hygienists, teachers and optometrists. Section 1.112 and Article 3 of Chapter V provide that any of such persons may not be employed as physical inspectors unless they hold (a) an appropriate credential from the State Board of Vocational Education; (b) an appropriate professional certificate from the respective state boards of examination, licensure or registration; and (c) a health and development certificate granted by a board of education.

Article 3 of Chapter IV provides the board shall make such rules for the physical examination of pupils in public schools under its jurisdiction as will insure proper care of pupils, assure secrecy respecting individual defects found and tend to the correction of such defects. It is questioned whether this authorizes the board to engage in the actual correction of physical defects or to engage in public health preventive measures such as immunization. Section 1.120 specifically authorizes only the testing of sight and hearing of pupils by qualified physical inspectors.

Section 1.121 provides for the exemption from physical examination during any school term of any pupil in behalf of whom its parent or guardian has filed a signed statement in writing refusing to consent to such examination; the section provides for the exclusion of such



exempt pupils if suspected of having a contagious or infectious disease for the duration of said suspicion.

Section 1.122 provides that the parents or guardian of a pupil found upon physical examination to have a defect shall be notified by the physical inspector and shall be requested to take action for its cure or remedy. Parents or guardians are stated to be invited to be present during the physical examination of their respective children.

The accompanying organization chart of the health service section of the Los Angeles school district presents graphically the arrangements made for carrying out the various activities in which it is engaged. It will be observed that these activities are broadly associated for administrative purposes into three main divisions (a) corrective physical edu-

cation (and orthopedics) ; (b) nursing service in schools and treatment clinics (c) medical and dental diagnostic services (excepting orthopedics) and treatment clinics.

The expenditure of funds specifically for the support of the activities of the health service section of the Los Angeles school district for the fiscal year 1938 was reported in the sum of \$440,807.18. This expenditure was broken down as follows:

Equipment -----	\$1,335.28
Expenses (including \$8,887.94 for mileage) -----	25,484.84
Salaries -----	413,987.06
	<hr/>
	\$440,807.18

In considering these expenditures, it should be noted that office space and facilities are furnished in school buildings without charge and that funds in the cooperative support of treatment clinics are contributed by the Parent-Teachers Association and the Community Chest of the city (amounts not made available). Tuberculosis case-finding likewise was organized as a special cooperative project in the major support of which funds were contributed by the federal Works Progress Administration and the Los Angeles Health and Tuberculosis Association. This project is discussed in a preceding section of this report on tuberculosis control.

It is noteworthy that excluding funds derived from nonpublic sources, the expenditures in the fiscal year 1938 for school child hygiene services (available only ten months of the year in the public schools) were 60 per cent of the total amount appropriated and expended by the city health department for all public health services to the entire population of the city for 12 months of the year. The per capita (pupil) expenditure of the school health service section, excluding the special day and evening classes for adults, was \$1.37 as compared with 47 cents per capita for all public health services rendered by the city health department. It was not practicable to ascertain the total expenditures of both public school and private funds, nor the relative amounts expended by the health service section for physical examination and for medical care.

The guidance objectives of the health service section of the Los Angeles school district are given below. A statement of these which is believed to be self-explanatory, has been included in its entirety from a publication of the health service section.

"The guidance objectives of the health service section involve a program of individual guidance in health for every child so that optimal physical, mental, emotional, and social health may be attained.

I. The first guidance objective of the health service section relates to adequate health instruction.

1. Of school children by suitably trained teachers and other school health personnel. Such instruction will contribute to:
 - a. The development of wholesome and correct attitudes with regard to personal and community health practices.
 - b. The development of proper health habits.
 - c. The learning of such scientific health facts as may be necessary for successful living in modern society.
 - d. The achievement of optimal health through activities involving individual student participation and intelligent self-direction.
2. Of teachers by school physicians, dentists, and nurses through faculty, institute group meetings, individual conferences, and health literature.

3. Of parents through parent-teacher meetings, radio talks, home calls by nurses and individual conferences at schools with various members of the health section.

II. The next major objective of the individual guidance program involves adequate knowledge of the child's health at all times. This may be achieved only by the intelligent cooperation of all of the school personnel, each making his specific contribution. In this program the teacher has a most important place as the child is constantly under his observation. Adequate knowledge of the child's health at all times requires from the health section the following contributions:

1. By the physician inspector:

Periodic health examinations under the board of education at the following grade levels:

- a. On entering school, usually in kindergarten or first grade, the examination being made in the presence of the parent. Examination should be thorough and complete and educational for parent, child, and teacher.
- b. In fourth, seventh, and tenth grades.
- c. Examination of all problem children presenting physical, mental or emotional disturbances or social maladjustments. These examinations should partake of the nature of consultations, conferring with all school personnel who may contribute to the solution of the problem, e.g., counselors, vice principals, supervisors of exceptional children, nurses, corrective and physical education teachers, as well as parents or outside agencies.
- d. Special examinations and inspections of handicapped or exceptional children, children returning to schools after illness, cafeteria workers, minors applying for work permits, ROTC candidates, athletes, etc.

2. By the physician inspector specialist:

- a. Audiometer examinations for all children in fourth grade and children specially referred on account of suspected hearing difficulties or school retardation; children in development or adjustment rooms.
- b. Ear, nose, and throat examinations of children failing on audiometer tests.
- c. Telebinocular tests for children in kindergarten and first grade, children with reading difficulties, retarded or specially referred on account of symptoms of visual defects or emotional or nervous disturbances.
- d. Examination of children for conservation of vision and hard of hearing classes.
- e. Refractions of all indigent school children unable to obtain the services of a family eye specialist or other community health agencies.
- f. Chest board for diagnoses of suspected cases of tuberculosis and recommendations regarding school activities.
- g. Heart board for diagnoses of difficult and borderline heart cases for recommendation regarding school activities.
- h. Orthopedic board for diagnoses of difficult posture and orthopedic cases and recommendations regarding suitable corrective exercises. This service to be closely related to corrective physical education program.
- i. Behavior problem clinics in cooperation with educational research and guidance section for the solving of mental and emotional health problems.

3. By the dentist inspector:

Dental inspection for all children specially referred on account of dental health problems.

4. By the nurse inspector:

- a. Weekly health inspections by nurse inspectors for health appraisal and control of contagion.
- b. Inspection at any time of cases specially referred by classroom teachers as a result of her screening inspection.
- c. Home calls or conferences at the school with parents.
 - (1) To obtain knowledge of health habits of the children.
 - (2) To educate parents in child training methods relating to health.
 - (3) As part of a thorough follow-up program which will stimulate interest in the correction of physical defects and where necessary guide pupils and parents to sources of medical and dental treatment.

5. By the corrective physical education teacher:
Constant vigilance in appraising the health of pupils and screening out children with postural, nutritional and other deviations from normal growth and development for reference to the school physician or orthopedist.
- III. Corrective physical education for every child requiring an adaptive physical education program, namely, children with postural, nutritional, cardiac, nervous defects, etc.
- IV. Adequate protection of the child's health through a healthful school environment involving:
 1. Sanitation of the school plant.
 - a. Proper lighting with elimination of glare and a minimum of 15 foot candles for reading.
 - b. A classroom temperature of between 68° and 70° F.
 - c. Ventilation. Hall transoms must be kept open and good ventilation maintained in accordance with standard instructions.
 - d. Strict cleanliness of the school grounds and buildings with special attention to cafeterias, gymnasiums, washrooms, swimming pools and toilets.
 - e. Dustless school grounds by use of turf, asphalt, calcium chloride treated soil, and of water where indicated.
 2. Hygienic arrangement and management of school program, e.g., periods of suitable length, study load including home work adapted to individual children, number and length of recesses, length of lunch period, proper type of discipline, etc., looking toward the reduction of strains and stresses of school life.
 3. Health service rooms of suitable size, properly located, and adequately equipped where health examinations, consultations and first aid can be conducted.
 4. Cooperation with local boards of health in carrying out immunization programs for the control of smallpox and diphtheria; and tuberculosis case-finding surveys for discovery and prevention of tuberculosis.
 5. Adequate facilities for the temporary isolation and care of suspected cases of communicable disease.
 6. Adequate provision of rooms for rest for below par children.
 7. Adequate buildings suited to the health needs of the handicapped.
 8. Adequate rooms and facilities such as open air sun rooms for the under-nourished or delicate child.
 9. A planned program for first aid and the prevention and care of accidents.
 10. Adequate health examination of teacher applicants and other school employees.
- V. The protection of school employees through health examinations of those specially referred, and through voluntary periodic health examinations of all employees so that disease processes may be discovered in their earliest stages and prevented from developing by advice as to prevention and treatment.
- VI. Health service for children where the service has special educational and health values which are supplied or obtainable by other community health agencies.
 1. Dental service:
 - a. Dental health education for all school children and teachers through addresses by dentists to school faculties and classrooms.
 - b. Dental consultations for all school children with special dental health problems.
 - c. Dental reparative service for all indigent school children unable to obtain the necessary services in other community dental health agencies.
 - d. Dental hygienists for oral hygiene teaching and oral prophylaxes.
 2. General medical and surgical clinics operated in cooperation with the Parent-Teacher Association and members of the Los Angeles County Medical Association where the medical group are interested in the establishment of such clinics through voluntary service, e.g., Yale Street, San Pedro, Westminster, and Rio Vista health centers.

VII. A health coordination program to coordinate all phases of health service and health education in each school so that the guidance objectives enumerated above may be realized and made to function in the life of each individual school child. The organization of a health committee and the appointment of a health coordinator in each school are recommended as desirable procedures for achieving better health coordination."

Corrective and remedial care constitutes a large sector of the activities of the Health Service Section of the Los Angeles School District, notwithstanding the intent of the law would appear to authorize the promotion of necessary corrective and remedial care rather than actual engagement in those activities. The corrective and remedial care activities are administered through a series of clinics. The following is from a publication of the Health Service Section which outlines the rules for the conduct of these clinics:

"The school health centers are conducted for the benefit of the Los Angeles public school children whose parents or legal guardians are financially unable to provide the necessary medical or dental care.

The board of education maintains the buildings in which school health centers are located, supplies the equipment, and pays the salaries of employees. The Parent-Teacher Association and the Community Chest pay for such supplies and expenses as are not in the province of the board of education. The Parent-Teacher Association handles all money received for registration fees, glasses, X-ray work, etc.

The selection of pupils entitled to treatment at school health centers is the responsibility of the school physician or nurse. When neither of these individuals is available and the case is urgent, the principal may make a clinic appointment if the pupil is eligible for this service. Only pupils whose parents or guardians are financially unable to provide the necessary medical or dental care are eligible for treatment at school health centers. Eligibility is based upon the social rating of the family, determined by the family income, size of family, and other factors in the social history.

The social service workers at the health centers will investigate cases where there is doubt as to the eligibility of pupils and will arrange, in suitable cases, for hospitalization or treatment in outside clinics.

The school health center is *not* an emergency hospital. The fact that a pupil is injured on school grounds does not make him eligible for clinic care. An injured pupil must have received first-aid at a receiving hospital within twenty-four hours, after which he may be referred to a school health center for further attention if he is under twenty-one years of age and can not afford the services of a private physician.

The procedure of going to a receiving hospital is often overlooked in the school. When this is done the clinic must send the patient elsewhere for first-aid, thus causing discomfort to the child and displeasure to the one accompanying him.

All admissions to school health centers are by appointment. Such appointments are made by the school physician or school nurse or, in urgent cases, by the principal. If possible, the pupil should be accompanied to the clinic by the parent or guardian. However, whether a child appears at the clinic alone or is accompanied by his parent or guardian, he must present a consent slip signed by parent or guardian before treatment is administered. These consent slip forms may be obtained from the physician or nurse at the school. It is not legal to treat a minor without the consent of the parent or guardian. The consent slip protects the board of education, the Parent-Teacher Association, and the volunteer staff against the occasional troublemaker.

If a child has no legal guardian, a relative or an adult friend may be appointed as his legal guardian for purposes of medical aid.

A registration fee of twenty-five cents (25¢) is charged in all school clinics. Other services, glasses and drugs, are charged for according to the economic status of the individual pupil. The usual charge

for X-rays and laboratory examinations is one dollar (\$1). The social worker at the clinic will make exceptions in cases of extreme necessity.

At Yale Street Health Center the pupil must register between 8 a.m. and 10 a.m. An appointment card, which must be presented on each subsequent visit, is given to each pupil at the time of registration at that clinic. If the principal keeps this card for the pupil it should be handed to the child on the occasion of his next visit to the clinic. Emergencies can not be cared for at Yale Street Health Center. School physicians are not authorized to give treatments on school property, and the volunteer physicians and surgeons are only at the clinic for a short time each day. Furthermore, general anesthetics are not permitted in school clinics, so that there are many cases which could not be handled there; consequently, if emergency cases were accepted much time would be lost and the child might suffer unduly before reaching the place where he should have been sent in the first place.

Physicians, nurses, principals, or corrective teachers, who send children to school health centers, are requested to give a brief history on the back of the consent slip for the information of the clinician examining the child, unless the condition for which the child has been referred is obvious—as in dental decay.

Admission Rating

Families with incomes of:

- a. \$110 and up with two children in family—are referred out unless a major health problem exists.
- b. \$90-\$110 with two children in family—pay all clinic charges; sometimes referred out for minor medical care.
- c. \$80-\$90 with two children in family—pay all registration fees.
- d. \$80 or less with two or more children in family, unsteady work, etc.—no fee.

For each additional child in family, from \$5-\$10, according to age, should be added to the family income in estimating the admission rating of the case.

Physicians and nurses are expected to be familiar with the admission rating, otherwise a parent or child may be sent on a useless trip to the clinic. Principals making clinic appointments for school children should also keep this admission rating in mind."

The Yale Street Clinic is sponsored by the Parent-Teachers Association and Community Chest for its major expenditures. The supplies and personnel, however, are furnished by the board of education. Recently the Parent-Teachers Association has equipped the Yale Street Clinic with portable X-ray equipment. This has been of great help in the tuberculosis case-finding program carried out by cooperative efforts of the board of education, the Los Angeles Tuberculosis and Health Association, the Parent-Teachers Association, and the WPA. Four of the health centers have volunteer staffs. All of these clinics are located on school grounds with the exception of the Yale Street Clinic which has been deeded to the board of education by a philanthropist.

The following is a list and the location and clinic hours of the various clinics of the health service section of the Los Angeles School District:

General Medical Clinics

Rio Vista (at Rio Vista School)

Medical Clinic: Tuesday and Thursday (mornings) 8:30-12:30.

San Pedro (at Cabrillo Avenue School)

Medical, Dental, Eye and Ear

Daily 8-12:30

- Venice (at Westminster Avenue School)
 Medical, Dental, Eye
 Medical Clinic: Tuesday (mornings) 9-12
- Yale Street
 Medical, Surgical, X-ray, Laboratory, Dental, Eye, Ear, Nose,
 Throat, etc.
 Daily (mornings) 8-12

Eye and Ear Clinics

- Florence Avenue (at Florence Avenue School)
 Eye Clinic: Monday and Friday 8-3
 Eye and Ear: Wednesday 8-3
- San Fernando (at San Fernando Elementary School)
 Eye and Ear Clinic: Thursday 8-3
- San Pedro (at Cabrillo Avenue School)
 Eye and Ear Clinic: Thursday 8-3
- Van Nuys (at Van Nuys Elementary School)
 Wednesday 8:30-12:30
- Venice (at Westminster Avenue School)
 Wednesday 8-3
- Yale Street
 Optometrists: Daily 8-3
 Oculists: Tuesday, Thursday and Friday 8-3
- Mobile Health Unit No. 2
 Outlying schools in Los Angeles proper
 Tuesday only 8-3

Dental Clinics

- Culver City (at LaBallona School)
 Daily except Friday 8:30-3
- Euclid Avenue (at Euclid Avenue School)
 Monday, Tuesday, Friday 8-12:15
- Florence Avenue (at Florence Avenue School)
 Daily 8:30-3
- Manchester Avenue (at Manchester Avenue School)
 Daily 8:30-3
- One Hundred Eleventh Street (at 111th Street School)
 Daily 8-12
- Rowan Avenue (at Rowan Avenue School)
 Daily 8:30-3
- San Fernando (at San Fernando Elementary School)
 Daily 8-12:15
- San Pedro (at Cabrillo Avenue School)
 Daily 8:30-3
- Sawtelle Boulevard (at Sawtelle Boulevard School)
 Daily, except Wednesday 8:30-3
- Venice (at Westminster Avenue School)
 Daily 8-12:15
- Wilmington (at Avalon Boulevard School)
 Daily 8-12
- Yale Street (at Yale Street Health Center)
 Daily 8-3
- Mobile Unit No. 1
 Elementary Schools
 Daily 8-12
- Mobile Unit No. 2
 High Schools
 Daily 8-3
- Mobile Unit No. 3
 Elementary Schools
 Wednesday and Thursday 8-12:15
 Tuesday and Friday 8:30-3

The following brief recapitulation of classified activities of the school health service section is gleaned from the published statistical report of operations for the fiscal year 1938. This report represents the gross scope and volume of work done but the data presented does not permit much comparative study nor evaluation of the results obtained.

The total enrollment of pupils in public schools, exclusive of special adult day and evening classes, is stated to be 321,892 of whom 6,202 were exempted from physical examination by filed request of parent or guardian. A total of 264,553 defects or conditions needing corrective or remedial attention were found in pupils examined by health service school physicians and 102,535 were corrected or remedied through private family physician and 118,583 through health service clinics. A total of 5,893 cases of communicable disease were reported to the city health department.

During the fiscal year, a total of 185,583 complete physical examinations by physical inspectors (doctors of medicine and doctors of osteopathy) were recorded; an average of some 20 per school day per part-time inspector. In addition 2,629 health examinations of teachers and 115,802 health inspections for contagious disease in pupils, school cafeteria workers and athletes were recorded. A total of 13,354 first-aid cases were handled and 637 sanitary inspections were made. There also were recorded 15,368 consultations with teachers and 13,960 consultations with parents.

A board of physical inspectors (physicians) is maintained for special heart examinations; there were 744 cases examined of which 236 were diagnosed as functional and 80 as organic. A similar board also examined special chest cases; there were 1,131 cases examined and 255 were Mantoux tested while 6 were subjected to Lipiodol testing.

There were also reported as found in schools 79,749 cases of skin and scalp diseases and 3,052 treatments for these conditions were furnished in the health service clinics.

There were reported 524 revisits and 214 new cases in mental hygiene activities during the fiscal year. Selected problem pupils are studied by the teacher, student councilors and physical inspectors (physicians) and if the pupil is not adapted to the standard academic program, the pupil is transferred to one of the special activity (trade) schools. Special facilities also are provided for the following classes of pupils:

1. Classes for lip reading.
2. Classes for conservation of vision.
3. Classes for speech defects.
4. Development rooms for the subnormal child.
5. Opportunity rooms for the superior child.
6. Classes for crippled children in orthopedic hospitals.
7. Classes for tubercular children in sanatoria.
8. Schools for children in special industry.

Physical inspectors (physicians) also made medical examinations of 1,251 candidates for Reserve Officers Training Corps; 1,041 were passed, 140 were conditioned and 70 were rejected.

A total of 47,761 pupils were referred for special eye examination or treatment by physical inspectors (oculists and optometrists); 5,503 were refracted and 1,206 were given telebinocular examinations; 2,677

were supplied with glasses and 3,138 had repairs made or lenses replaced, while 1,353 were given orthoptic training; a total of 4,575 cases were classified as miscellaneous and 9,412 miscellaneous corrective or remedial treatments were given.

A total of 26,358 pupils were referred for special examination of ear, nose or throat; physical inspectors (physicians) tested 13,129 with audiometer and 900 were found with marked defective hearing while 50 were recommended for special lip reading classes; 958 nose and throat examinations were made.

Physical inspectors (physicians) made 3,477 orthopedic examinations in schools and 5,964 orthopedic examinations in school clinics.

Dental activities reach large proportions. The report lists 8,042 cases referred to physical inspectors (dentists) but this is apparently much too low for the report records a total of 202,676 dental operations and 27,212 dental examinations. Also reported were 69,920 treatments, 48,819 fillings, 19,841 extractions and 4,592 cleanings. There are 19 part-time and 1 full-time physical inspectors (dentists) and 18 part-time and 1 full-time assistant physical inspectors (dental assistants) assigned to dental activities.

Physical inspectors (nurses) make classroom inspections, look after lesser communicable diseases, assist in arranging remedial or corrective care for defects and conditions found on physical examination and apparently engage in immunization of pupils against diphtheria and vaccination against smallpox. The report of physical inspections by nurses lists 3,166,021 classroom inspections, 16,049 cases of lesser communicable diseases handled, 102,535 cases needing corrective or remedial attention accomplished by reference to family and family physicians, 18,327 pupils immunized against diphtheria and 24,813 vaccinated against smallpox.

Corrective physical education classes are held for pupils in elementary, junior and senior high schools for boys and for girls. There were reported 29,755 pupils enrolled in these special classes for a total of 1,430 class periods. Corrective physical education and training is applied to the following listed conditions: posture (head forward—stoop), kyphosis, lordosis, scoliosis, foot conditions, heart conditions, chest conditions, paralysis, nervous conditions, menstrual abnormalities, nutrition and other miscellaneous defects or conditions. This work is conducted by physical inspectors (physical educators) but no mention is made of supervision by those skilled in medical diagnosis and treatment.

Health education activities of the Health Service Section are summarized in the published annual report in terms of special lectures given: assistant directors 46, physical inspectors (physicians) 280, physical inspectors (nurses) 6,127, teachers 202.

Trained public health workers will experience various reactions to such a report; one largely common reaction will be that overpowering emphasis is on statistical presentation which after all leaves one in doubt about many most important details. The report is a volumetric recapitulation which portrays the quantitative aspects of the work but which throws little light on the qualitative aspects and does not permit evaluation of the activities.

It is noteworthy, too, that training or experience in public health is not a requirement for appointment to any of the various classes of physical inspectors, notwithstanding the important public health aspects of these activities.

Recommendations

It is recommended that:

1. A school child hygiene section be developed in the preschool subdivision of the new maternal and child hygiene division recommended to be established in the city health department.

2. An adequate school hygiene program be formulated and prosecuted by the city health department to serve all school child age groups in other than public schools.

3. A formal committee be appointed to function in a liaison capacity and to clear matters of integration and coordination of school hygiene activities of the three respective official agencies concerned in the metropolitan school district area and to build up a joint comprehensive program—the membership of the committee to be selected with due regard to qualifications and experience; two members (a physician and a public health nurse) to be selected by the city health department, one member (a physician or public health nurse) to be selected by the county health department, and two members (one physical inspector physician and one physical inspector nurse) to be selected by the health service section of the school district.

4. Consideration be given to the ultimate advisability of turning over or transferring to the official public health agency having territorial jurisdiction all public health and sanitation activities of the school district for administration and accomplishment. In this event the liaison committee recommended should continue to function, with the modification that the representatives of the school district be selected from the educational personnel in lieu of health service personnel at present recommended.

5. More emphasis be placed upon the preventive public health aspects of the school child hygiene program even if that requires decrease in official activity in correctional and remedial care. It is more important to the tubercular child and to his associated pupils, his family and to the public interest, that he be discovered early and placed under treatment than it is to have his eyes refracted or teeth cleaned; a high percentage of immunization against diphtheria and smallpox is more important than correction of posture; proper desk and black-board lighting and classroom ventilation or effective cafeteria and swimming pool or gymnasium sanitation is more important than discovery and treatment of flat feet or headache or eczema.

6. More informational and less statistical annual reports be prepared of school hygiene activities to permit evaluation of effectiveness and relative costs.

7. An annual health examination be required of all school personnel coming in close contact with school children, and that only those found free from all disease communicable to others, be assigned to such duty.

8. Greater progress be made in achieving attainment of the guidance objectives so comprehensively stated.

MEDICAL CARE

By MEDICAL DIRECTOR F. A. CARMELIA and P. A. SURGEON F. W. KRATZ,
U. S. Public Health Service

No modern discussion of public health activities and facilities in a community would be complete without reference to the provisions made for general medical care. The public health horizon has retired and enlarged, as horizons will do in most fields when viewed with the increased depth and angle of scientific vision.

Old line public health activities, more or less restricted to the prevention of communicable diseases, are still in the picture but only in the foreground of the modernly enlarged view. Many of these old line public health problems have been controlled, but it is to be remembered that they will not stay controlled except with continued and constant vigilance; for one thing, a new generation of recruits to the human race is being added daily and yearly, and for another practically all infectious diseases have a way of recurring in more or less regular intervals, usually in world wide progression, and with these periodic rising tides of infection the virulence of the causative organism increases and it attacks populations whose resistance has gradually lowered during the ebb tide period of lessened prevalence. Furthermore, constant research is ever enlarging the recognition and knowledge of new communicable diseases and brings new public health responsibilities.

The definition of this modern concept of the field of public health activities may be succinctly stated as follows: A public health problem is any condition or circumstance inimical to health which is beyond the control of the exposed individual and which necessitates community action for its prevention or control.

In a democracy, community action finds expression through official governmental agencies which are the public servants maintained for that very purpose.

Now if an individual is exposed to infection from infected persons or market foods and so on, or to poisonous fumes or dangerous dusts in his occupation, or requires hospitalization or medical care beyond his ability to provide such for himself, there is presented a problem for community solution. It concerns the community as a matter of self-protection and/or economic conservation of human resources.

Considerations of national citizenship and state or local residence in the ultimate analysis factually are immaterial. Infected aliens or nonresidents are just as threatening to the general population and sometimes more so, than infected citizens or residents. The loss of an alien or nonresident productive worker is just as much an economic loss to the community as the loss of a citizen or resident worker. Community conservation of human resources is just as essential and foresighted as conservation of natural resources—each complements the other and together determine its economic well being.

Public Medical Care

The accomplishments of the Los Angeles City Health Department and the Health Service Section of the Los Angeles School District in furnishing medical care can be gleaned from the preceding discussion of their various specific activities. It is noteworthy that these services are initially available to all, regardless of residence.

Public medical care is also available at the Los Angeles County General Hospital to residents of the city of Los Angeles who are altogether unable to pay for needed medical care and are without responsible near relations; to be admitted the applicant must be a resident of the state and county for the preceding three years and usually also must be a citizen of the United States. Inasmuch as the Los Angeles County General Hospital is located in the city of Los Angeles and is engaged primarily in a general medical care program available to both public and pay patients, a more detailed discussion thereof will be found in the section of this report dealing with general medical care facilities in the city of Los Angeles.

The city of Los Angeles also maintains an emergency hospital service as a separate activity administered directly under the supervision of the city council. This institution is known as the Georgia Street Receiving Hospital and it was established December 14, 1910, originally for the purpose of rendering emergency treatment to all sick or injured firemen and policemen, injured or contracting sickness in line of duty; but now any person injured or taken sick on the streets or in public buildings, attempted suicides and any case that may be deemed strictly an emergency in the home are admitted. In addition to rendering such service to civilians, city ordinance No. 76799 provides that the chief surgeon thereof shall determine the physical fitness of all candidates for appointment to the positions of firemen or policemen, and shall provide medical and surgical care for all prisoners incarcerated in the city jails.

The Georgia Street Receiving Hospital is the administrative headquarters of the emergency medical care system which consists, in addition to the receiving hospital, of emergency branches and ambulance stations located in several district police stations distributed throughout the city and also includes medical care of prisoners at treatment centers located in the Lincoln Heights City Jail and in the Central Station Jail. All personnel are in city classified civil service, including the police surgeons. The following table gives the number and distribution of the various classes of regular full-time personnel:

Unit	Number of beds.	Chief surgeon.	Assistant chief surgeon.	Floor surgeon.	Ambulance surgeon.	Chief nurse.	Super. Nurse.	Floor nurse.	Hydrotherapy nurse.	Ambulance drivers.	Chief clerk.	Clerks.	Chief.	Janitors.	Total personnel.
Administration	1										1	8		2	12
Receiving hospital.	20	1	6	4	1	3	27	1	4	4		2	1	2	52
Hollywood Branch	4		3	4			4		4	4				2	17
Pasadena Avenue Branch	8		3	4			1		4					1	13
San Pedro Branch	*2		1				2							1	4
Venice Branch	2		1			1									2
Wilmington Branch			1												1
City Hall Branch	*5						1								1
Van Nuys Jail			1												1
West Los Angeles Jail			1												1
Newton Ambulance Station				4					4						8
Wilshire Ambulance Station				4					4						8
77th St. Ambulance Station			1	4					4						9
Hollenbeck Ambulance Station				4					4						8
University Ambulance Station				4					4						8
Lincoln Heights Jail			1			1	3								5
Central Avenue Jail				4					4						8
Totals	34	1	1	19	36	1	5	38	1	36	1	10	1	8	158

* Recovery couches—7.

The following table recapitulates the amount of medical care rendered by the Georgia Street Receiving Hospital and its police station emergency branches during the fiscal year 1938:

Hospital	Police and Firemen First Treatment	Retreatments Police and Firemen	Prisoners In Jail	Emergency Civilians	Total Treatments Rendered
Georgia Street Receiving Hospital	5,604	9,233	-----	56,151	70,988
Hollywood Branch	350	117	-----	9,787	10,254
Pasadena Ave. Branch	150	37	-----	6,183	6,370
San Pedro Branch	81	79	-----	1,976	2,136
Venice Branch	29	33	-----	2,150	2,212
West Los Angeles Branch	80	3	-----	1,644	1,727
Van Nuys Branch	163	171	-----	2,313	2,647
Wilmington Branch	108	107	-----	907	1,122
City Hall Branch	97	10	-----	2,349	2,456
All Others Branch	-----	-----	-----	2,000	-----
Lincoln Heights Jail	-----	-----	56,732	-----	56,732
Central Jail	-----	-----	2,870	-----	2,870
Grand total	6,662	9,790	59,602	83,460	159,514

In addition there were a total of 29,191 ambulance calls answered, in which there were rendered 34,351 first-aid or emergency treatments.

The following table summarizes the expenditures for the fiscal year 1938 for the support of the Georgia Street Receiving Hospital and its emergency branches in the various police stations, including the expenditures for ambulance service in part; the support of the several ambulance stations is not shown as the cost of these except for salary of ambulance surgeon and driver is a charge against the police department and the expenditures were not available.

Unit	Total Amount	Salaries	Equipment	Other Expenses
Georgia Street Receiving Hospital	\$190,703.03	\$149,535.00	\$1,076.55	\$40,090.63
Hollywood Branch	39,703.44	36,393.00	34.38	3,286.06
Pasadena Ave. Branch	30,547.49	29,012.00	7.90	1,527.59
San Pedro Branch	8,315.74	7,540.00	165.53	610.21
All other branches and miscellaneous	108,874.42	107,426.00	47.91	1,481.85
Lincoln Heights Jail	12,137.19	10,668.00	14.75	1,454.45
Totals	\$390,371.81	\$340,574.00	\$1,347.02	\$48,450.79

The following table presents the unit treatment costs at the Georgia Street Receiving Hospital and the principal emergency branches, both inclusive of ambulance service and exclusive of ambulance service charges. The unit treatment costs at the Lincoln Heights and Central Avenue Station city jails was \$0.21 exclusive of ambulance service furnished by the police department and exclusive of cases requiring hospitalization outside.

Unit	Total Cost Salary and Equipment and Supplies	Cost Per Treatment	Cost Ambulance Service	Cost Per Treatment Minus Cost of Ambulance Service
Georgia Street Receiving Hospital	\$190,703.03	\$2.69	\$17,920.00	\$2.43
Hollywood Branch	39,703.44	3.89	17,920.00	2.12
Pasadena Ave. Branch	30,547.49	4.80	17,920.00	1.98
San Pedro Branch	8,315.74	---	Charge to Police Dept.	3.89
All others and miscellaneous	108,874.42	---	Charge to Police Dept.	?
City jails	12,137.19	---	Charge to Police Dept.	0.21

The total expenditures for medical care activities of the receiving hospital and emergency branches, inclusive of ambulance service but exclusive of medical care rendered prisoners in the city jails, was \$378,234.62 for the fiscal year 1938 which is equivalent to an average cost of \$2.76 per recorded treatment including ambulance first-aid treatments.

Inasmuch as the Georgia Street Receiving Hospital and the emergency medical care activities are not carried on by the city health department, a complete study thereof was not regarded to be called

for; however, it would seem from the foregoing data that the costs are high.

During the survey, rumors were heard that there was under consideration a proposal to transfer the administration of the Georgia Street Receiving Hospital and its emergency service activities to the city health department. That question is regarded to involve more a matter of policy than public health; the only comment made in that connection is that if it were transferred to the city health department, there would be some advantages and economies possible. For instance, the Georgia Street building erected by the city for the purpose is not entirely occupied by the emergency hospital activities and the space is partly utilized to house the crime prevention bureau of the police department. It is understood that provision could be made to house this bureau in some other buildings under the control of the police department; if it were vacated in the Georgia Street Receiving Hospital, this space could be utilized to house some of the clinic activities of the city health department which housing is badly needed now and which will be mandatory when the present inadequate health department building is demolished in the near future. It is quite possible also that the present personnel of the receiving hospital and the emergency branches then could be more effectively utilized if placed under the health department.

General Medical Care

In viewing the public health assets of a community it is essential to include the available professional and hospital facilities for either public or private general medical care.

An inventory of the number of professional individuals registered and/or licensed by the State of California to render service in the healing arts to the population of the city of Los Angeles in 1938 is as follows:

Doctors of medicine	3,321
Osteopaths	500
Chiropractors	500
Christian Science faith healers.....	280
Naturopaths	10
Total	4,611

This total of 4,611 gives a ratio of 323 persons per practitioner of the healing arts. Doctors of medicine and doctors of osteopathy are both licensed by the State of California to practice medicine and surgery, on an equal basis.

The following lists the number of persons registered and licensed to practice "old line" medicine in the city of Los Angeles:

Private Practitioners	Number	Population Per Practitioner
Doctors of medicine.....	3,321	430
Doctors of dentistry.....	1,750	830
Registered nurses	1,120	1,300
Nursing attendants	560	2,600
Pharmacists	700	2,070

There is a total of 106 hospitals, sanatoria, convalescent homes, et cetera, located in the city of Los Angeles, approved and licensed by the State Department of Public Health which are listed as follows:

Hospitals :	Type	Number of Hospitals or Sanatoria	General Beds	Maternity Beds	Total Beds	Not Registered With A.M.A. No. of Institu- tions	No. of Beds
	Without maternity service-----	25	1,997		1,997	14	305
	With maternity service-----	35	4,473	792	5,284	16	481
	Rest homes, etc., sanatoria-----	46	864		864	43	740
		106	7,334	792	8,145	73	1,526

It would appear that, in general, the city of Los Angeles is reasonably well provided with hospital facilities. There are about 4.67 beds per 1,000 population for general purposes and about 5.47 beds per 1,000 for all purposes located within the city of Los Angeles. The difficulty in estimating the number of beds for the city alone, is that the great Los Angeles County General Hospital and the large Olive View Sanatorium, though in the city limits, are county owned and managed, and provide for the hospital care of all county residents, including those of the city of Los Angeles. However, when we consider that the population for the city of Los Angeles represents 66 per cent of the total county population, we may be able to assume that 66 per cent of the beds available are for Los Angeles city residents.

The following table lists the total number of all cases of beds available in the metropolitan area in Los Angeles County and shows the proportionate share thereof that may be credited to the city of Los Angeles according to its proportionate population (about 60 per cent of total county population):

Type	Entire Los Angeles County		No. of Beds Credited to City of Los Angeles (60% of County Population)
	No. of Beds	No. Beds Per 1,000 Total Population	
General -----	11,434	4.8	6,860
Tuberculosis -----	2,322	.97	1,393
Sanatoria -----	2,167	.91	1,300
Preventoria -----	155	.06	93
Nervous and mental-----	1,014	.42	608
Total -----	17,092	6.3	10,254

There is, constructively, a total of 10,254 hospital beds of all classes in the city of Los Angeles, including beds in county institutions and hospitals, preventoria, convalescent rest homes, et cetera, which is equivalent to 8.46 beds for all purposes available to the residents of the city of Los Angeles.

The number of available beds for tuberculosis patients is below the standard of 2 per death. In 1938, there were 860 deaths from tuberculosis, therefore according to the generally accepted standard of 2 beds per death per year, there should be 1,720 beds available for the residents of the city of Los Angeles. But during the fiscal year 1938, only 562 city tuberculosis patients from the city of Los Angeles were

hospitalized. So the comparison of estimated number of available beds with the number of placements of tuberculosis patients in sanatoria is up to expectancy. There is no doubt but that a marked shortage of beds for tuberculosis patients does exist and even though such hospitalization comes under the jurisdiction of the county department of charities, this fact must be mentioned in this study and is discussed in detail in the section on the control of tuberculosis.

According to the 1939 report submitted to the American Medical Association by the Los Angeles County General Hospital which furnishes public hospitalization facilities for the county as a whole, the average census shows that only an average of about 75 per cent of the beds are occupied. However, the turnover is rather rapid in the majority of the sections of the hospital utilized for acute general purposes. It would appear that the Los Angeles County General Hospital still has a reserve bed capacity that can take care of the future needs for the next several years, under the present rules governing eligibility for admission; it is believed that these rules as regards residency should be modified in the ultimate public interest of the community.

In addition to the foregoing listed hospitals and beds available for general public and private medical care, there are the following special institutions located in Los Angeles city and county for restricted classes of beneficiaries, originating from the regional areas served, respectively, including the city of Los Angeles.

State Hospital (mental)	2,574 beds
State Narcotic Hospital (drug addiction—mental defectives)	1,068 beds
Federal Veterans Administration (tuberculosis)	244 beds
Federal Veterans Administration (general and mental)	1,720 beds
Total	5,606 beds

In the following is summarized medical care data for the important hospitals, sanatoria, maternity and convalescent homes, and so on, located in the metropolitan area of Los Angeles city and county for the fiscal year 1938. Owing to the origin of patients admitted to these hospitals being not restricted to the city of Los Angeles and the fact that admission data was not generally segregated as to origin by residence, it is not practicable to present data with definite reference to the city of Los Angeles alone. In fact, admissions to these hospitals originate to a considerable but indefinite extent not only from areas outside of the city of Los Angeles but also from areas outside the county of Los Angeles.

Hospitals and sanatoria	Type of service	Ownership or control	Number of beds	Number of bassinets	Number of births	Average census	Admissions
Barlow Sanatorium	T.B.	N.P.A.	100			96	80
Baurhyte Maternity Cottage	Mat.	N.P.A.	28	28		20	601
California Babies Hospital	Child.	N.P.A.	30	10	72	9	592
California Hospital	Gen.	Church.	261	31	1,216	222	8,204
Cedars of Lebanon Hospital	Gen.	N.P.A.	288	40	932	217	7,137
Children's Hospital	Child.	N.P.A.	185			143	4,311
Ex-Patients Home, J. C. R. A.	T.B.	N.P.A.	70			66	80
Eye and Ear Hospital	E.N.T.	Corp.	21			8	1,866
French Hospital	Gen.	N.P.A.	100	20	355	59	1,814
Golden State Hospital	Gen.	Private.	75			36	641
Hospital of the Good Samaritan	Gen.	Church.	400	45	694	327	9,453
Japanese Hospital	Gen.	Corp.	42	6	124	21	7,482
Lincoln Hospital	Gen.	N.P.A.	29	9	170	20	883
Los Angeles County General Hospital	Gen.	County	3,154	144	3,560	2,367	50,521
Los Angeles Sanitarium	Gen.	Private.	37			33	145
Methodist Hospital of Southern California	Gen.	Church.	180	40	1,133	107	4,878
Orthopedic Hospital	Or. Child.	N.P.A.	75			67	2,252
Pahl Hospital	Gen.	Private.	15	3	71	8	436
Presbyterian Hospital-Olmstead Memorial	Gen.	N.P.A.	215	65	1,194	155	6,057
Queen of Angels Hospital	Gen.	Church.	220	39	952	191	6,895
St. Vincents Hospital	Gen.	Church.	225	40	802	169	6,498
Santa Fe Coast Lines Hospital	Indus.	N.P.A.	150			95	2,197
Southwest General Hospital	Gen.	Private.	24	8	206	18	366
White Memorial Hospital	Gen.	Church.	174	24	1,035	128	6,579
San Pedro Hospital	Gen.	Corp.	88	22	511	56	2,006
Olive View Sanatorium	T.B.	County	1,017			985	756
Chase Diet Sanitarium	Conv.	Private.	22			11	151
Doughty Sanatorium	T.B.	Private.	14				39
Florence Crittenton Maternity Home	Mat.	N.P.A.	44	6	78	30	83
Junior League Convalescent Home	Conv.	N.P.A.	24			20	95
Juvenile Hall Hospital	Gen.	County	121			84	4,987
Las Palmas Rest Home	Nerv.	Private.	20			20	18
Resthaven	N.&M.	N.P.A.	40			24	138
St. Barnabas Rest Home for Men	Conv.	Church.	15			12	120
Salvation Army Maternity Hospital	Mat.	Church.	92	8	152	74	239
Twentieth Century Sanitarium	N.&M.	Church.	48			35	80
Sunland Sanatorium	T.B.	Corp.	60			57	76
I.O.O.F. California Sanatorium	T.B.	Frat.	100			20	15
Totals			7,803	588	13,260	6,010	138,771

Not even a brief summary discussion of medical care facilities available in the city of Los Angeles, such as this necessarily must be, can be closed without some special reference to the Los Angeles County General Hospital; this institution is one of the largest and most wonderful in the world.

General hospital care is administered by the county of Los Angeles under provisions of the Welfare and Institutions Code of the State of California which provides that:

"Every county * * * shall relieve and support all incompetent, poor, indigent persons and those incapacitated by age, disease or accident, lawfully resident therein, when such persons are not supported or relieved by their relatives or friends, or by their own means, or by state hospitals or other state or private institutions." (Sec. 2400 to 2615, Welfare and Institutions Code, State of California, 1937.)

In Los Angeles County the carrying out of the mandate is vested in the Los Angeles County Department of Charities through the Los Angeles County General Hospital.

Standards of eligibility for care in this institution are prescribed by the Los Angeles County Board of Supervisors within the limitations of state law and eligibility to admission is determined in each

individual case by medical social service workers of the county department of charities. While this institution is maintained by the taxpayers primarily for the care of acutely ill indigent residents of the state and county, in addition, any individual in the county, regardless of residence qualifications is eligible for care in the communicable diseases and psychopathic services, and also for emergency treatment. In general, persons who are not citizens of the United States have been excluded since 1937. Residents of the state and county who are financially unable to provide the needed medical or hospitalization services for themselves and can not obtain such assistance from legally responsible relatives, are admitted to services available according to rules of priority defining four general classifications as follows:

	Number of Self-supported Years in	
	State	County
Resident-----	Over 3 years	Over 1 year
Provisional resident-----	{ Over 3 years	Under 1 year
	{ Under 3 years	Over 1 year
Technical nonresident*-----	Over 3 years	Over 1 year
Transient-----	Under 1 year	Under 1 year

* This group has been on some type of public or private relief for a varying number of years and have not been self-supporting citizens for the required length of time to qualify as residents.

Since July 1, 1937, all patients have been billed for the entire or actual cost of their care and they or their legally responsible relatives are required to pay all or that portion of the bill which they are able to pay, whereas formerly patients were billed according to their apparent ability to pay, the policy now is to bill for the entire cost of their care although the entire amount may not be collectible at the time.

Liens must be taken on presently owned or subsequently acquired property with an assessed valuation in excess of certain limits belonging either to the patient or his legally responsible relatives. Liability of a patient to repay exists in the case of those financially able at the time of admission and who were admitted as medical emergencies, and in the case of those admitted as indigents, but who acquire financial resources in the future. The bills rendered and recorded, however, are for hospital charges only and do not include any charge for services rendered by the attending doctors who are members of the staff and give their services to the patients without compensation.

The Los Angeles County General Hospital has issued a brochure which gives interesting information concerning the hospital for the fiscal year 1937, from which the following text is largely abstracted.

The Los Angeles County General Hospital, a division of the department of charities, is maintained by the taxpayers of the county primarily for the care of acutely sick indigents. An indigent is one who can not provide for himself nor obtain from legally responsible relatives the assistance which he requires. To be eligible for county care, an indigent must have resided in the state three years and in the county one year.

The Los Angeles County General Hospital is one of the largest acute hospitals in the world, being five to ten times the size of the average private hospital.

The general hospital patient load for the fiscal year 1936-37, divided into the following racial groups, is listed according to color or parent nativity:

	Per Cent	Per Cent
United States citizens		
Native-born -----		83.21
American parentage -----	44.95	----
Mexican parentage -----	13.77	----
Negro parentage -----	6.53	----
Other foreign parentage -----	17.96	----
United States citizens, naturalized -----		6.45
Non-citizens -----		9.08
Citizenship unascertained -----		1.26
Total -----		100.00

The surveyors found it unfortunate that a resume of admissions was not available by the several classifications of residency eligibility.

During the fiscal year 1936-37, 4.7 persons out of every 100 living in the county were treated in the general hospital. Approximately one-half of these patients were treated in wards and one-half in clinics. The average stay in wards was 14.3 days per patient. There were 4,148 babies born in the general hospital during the fiscal year 1936-37.

The general hospital is divided into two separate units: the Los Angeles County Hospital staffed by doctors of medicine, and the Los Angeles County Osteopathic Hospital staffed by doctors of osteopathy. These units are operated separately, each having its own professional staff, buildings and equipment and each being under the supervision of its own medical director. These medical directors are responsible for general coordination of medical care given by attending doctors and for direct supervision of resident doctors, internes and the nursing division of their respective hospitals. Patients are afforded their choice, at time of admission, of treatment either by doctors of medicine or by doctors of osteopathy. The surveyors were informed that about 90 per cent of the beds in the hospital section were attended by physicians and surgeons who are doctors of medicine and that about 10 per cent were attended by physicians and surgeons who are doctors of osteopathy. Three medical schools utilize the facilities of the Los Angeles County General Hospital for training their medical students in the senior year. One of these medical schools is an osteopathic school, one is the medical school of the non-denominational University of Southern California, and one is the medical school of the sectarian University of Medical Evangelists.

The general hospital, including both the medical and the osteopathic units, is supervised by the executive superintendent of the Los Angeles County General Hospital. Available to the administration and the staff of each hospital is a medical advisory board which meets regularly with the directors of the two hospitals and the executive superintendent to establish general policies governing the care of the patients.

Also under the general professional supervision of each medical director is the out-patient medical relief program under which ambulant patients living outside who are not in need of in-patient care are treated in clinics and nonambulant patients not requiring hospital-

ization are treated by panels of physicians maintained in the several districts; these physicians contribute their personal services and receive reimbursement only for their expenses.

The executive superintendent supervises and directs the administration of the hospital through eleven divisions as follows:

The division of accounts, budgets and records maintains financial and patients' records, operates a post office for the use of patients and employees, an information and guide service, a mortuary and a telephone and paging system. The division of personnel maintains employees' personnel records and coordinates the personnel program of the hospital including employment, transfer, promotion and dismissal of employees. The division of procurement and property has custody and maintains records of all hospital property, prepares specifications and coordinates hospital purchasing. The division of operations, attached to the office of the executive superintendent, conducts studies, prepares reports and makes analyses of administrative problems.

The dental division performs necessary dental work for patients of both the medical and osteopathic hospitals. The pharmacy division purchases, manufactures and dispenses all drugs to patients. The ambulance and garage division transports patients to and from the general hospital.

The maintenance and power division performs all routine maintenance and repair, and operates the power plant. The culinary division prepares all patients' meals and special diets, prepares employees' meals and operates dining rooms; supervises training of student dietitians and student nurses.

The housekeeping division performs all routine cleaning of buildings, collects trash and garbage, operates elevators, tram service and patrols grounds and buildings. The laundry and linen division manufactures, launders and distributes linen required by patients, launders employees' uniforms and personal laundry of employees living on hospital grounds.

To provide care for all patients treated in the general hospital requires a paid staff of approximately 3,500 employees which must be assigned to shifts covering 24 hours daily, seven days a week. Consequently, only a small percentage of employees on the roster are on duty at one time. The paid general hospital personnel includes 237 resident doctors and internes, 784 nurses, 397 student nurses, technicians and numerous classifications of nonmedical workers. In addition, more than 500 physicians and surgeons of the community contribute part-time services on the attending staffs treating patients, supervising and instructing internes.

During the fiscal year ending June 30, 1937, there was an average of 2,561 patients treated in wards of the general hospital daily. The daily patient population varied from approximately 2,500 in the summer to more than 3,000 in January. Patient population in January, 1937, was highest in the history of the hospital. In addition to the 2,561 ward patients treated in the hospital daily during the fiscal year ending June 30, 1937, an average of 1,314 clinic patients were treated daily. More than 10,500 meals are served to patients and employees daily. Food is cooked in central kitchens, placed in insulated containers and transported to wards where it is served within 15 minutes after leaving the kitchen.

The cost of operating the general hospital is approximately \$5,500,000 annually which includes salaries of all employees, purchase of drugs, food and equipment required for patients' care. Patients are billed for the exact cost of their care in the hospital; they are not billed for the services contributed by attending physicians. Patients are required to reimburse the county to the extent of their ability to pay. Average cost of treating a ward patient daily is approximately \$4.50, which includes his routine care in wards and surgery, dental service, X-ray, blood transfusions, ambulance and laboratory. The total cost, including special services, of each clinic visit is approximately \$1.

There are 123 buildings on the 56 acres which comprise the grounds of the general hospital. Buildings occupied by the county hospital include the acute unit, communicable diseases building, psychopathic building, tuberculosis building and the jail building. The osteopathic hospital occupies two buildings. In addition, there are numerous employees' cottages, shops, laundry, and other service units. The acute unit is the largest and most modern building on the hospital grounds. Approximately three-fourths of all general hospital patients are treated in this building. The capacity of this one building is approximately 2,500 beds but in case of epidemic it would be possible, by crowding, to accommodate approximately 1,000 additional patients. The total bed capacity of all units of the general hospital is 3,600 under normal operating conditions or 5,000 in emergency.

Plans for the acute unit were begun in 1922 by the Allied Architects' Association of Los Angeles. After five years' research the building was begun in 1927 and completed in 1933. The total cost was approximately \$13,000,000. The building is of modern wing and set-back construction permitting maximum light and air in all wards. It is built of reinforced concrete on a steel frame and is virtually fire and earthquake proof. There are twenty floors in the acute unit including the basement. On each floor certain specialized types of services are given. On most floors there are seven wards and one clinic which are assigned to one service or to interrelated services. This segregation of patients enables doctors and nurses to provide adequate care quickly and efficiently, since trained personnel and specialized equipment are thus utilized fully.

Research prior to the construction of the acute unit indicated the wisdom of having all wards identical so that nursing personnel might be transferred from one ward to another without varying routines. All seventy-six wards are standard, the minimum bed capacity varying from 28 to 34. There are no large open wards in the building. Each wing constitutes a ward in which there are four six-bed rooms, one two-bed room and two one-bed rooms. In addition, certain wards have porches which accommodate approximately six beds. Each ward is a complete nursing unit. In the center is a nurses' station, pantry, utility room, treatment room, linen room, bathroom and toilet. An elevator shaft opens into the center of every ward which facilitates transfer of patients, visitors and employees from one section of the building to another.

Prior to opening the acute unit, detailed studies were made of the most efficient equipment with which to operate the various services.

The study resulted in numerous new types of equipment being developed which have since come into general use. In specifying such equipment the primary consideration was to secure types which would be durable and economical in operation. For example, stainless steel bedpans were specified because of their long life. Each six-bed room has a toilet, wash bowl, bedpan sterilizer and a nurse's desk. Each bed station is equipped with a signaling device for summoning the nurses and outlets for radio earphones. Patients receive complete medical care on each ward except when highly specialized treatments such as surgery, X-ray, hydrotherapy or specialized clinic care are required.

The following description of the distribution of functions by floors is given because of its interest:

The basement serves mechanical and housekeeping functions, receipt and storage of supplies and equipment, storage of patient's clothing, ice plant, medical record file room and doctor's garage. The first floor serves five general functions: (1) admission, medical examination and social service interview of patients; (2) physiotherapy and hydrotherapy treatment of ward and clinic patients; (3) classroom training of school of nursing; (4) administrative, personnel and business offices; (5) preparation of patients' meals and special diets, preparation of employees' meals and operation of employees' dining rooms.

The second floor serves seven general functions: (1) pediatric (children's) wards and clinic where all infants and small children are treated; (2) laboratories including general chemical and pathological laboratories and autopsy rooms; (3) pharmacy, which distributes all drugs issued to ward and clinic patients; (4) general medicine clinic, which treats all clinic patients not in need of highly specialized clinic care; (5) allergy clinic; (6) library, a branch of the county library system which furnishes patients and employees with books and periodicals and operates a medical reference library for the use of doctors and nurses; (7) business offices, which maintain patients' and financial records.

The third floor serves two functions: (1) orthopedic (bone fractures and corrective surgery) wards and clinic; (2) X-ray, which performs all radiographic and deep X-ray work for wards and clinics. The fourth floor serves five functions: (1) ear, nose and throat wards and clinics; (2) dental clinic; (3) electrocardiograph; (4) genito-urinary and rectal ward; (5) cystoscopy (internal bladder treatment). The fifth floor serves three functions: (1) eye wards and clinics; (2) rectal and miscellaneous wards; (3) offices of director of nursing.

Sixth and seventh floors are devoted entirely to medical wards and clinics. In the east end of the eighth floor are four birth suites. On the remainder of the floor are maternity wards and clinics. The entire ninth floor includes general and minor surgery (noninfected cases) wards and clinics. The entire tenth floor serves genito-urinary surgery (infected cases) wards and clinics. On this floor are two surgical operating suites and a small pathological laboratory.

The eleventh floor serves three functions: (1) gynecology wards; (2) occupational therapy; (3) preparation of sterile bandage supplies. Though equipped as wards, the twelfth floor is at present used as living quarters for internes, since no other quarters are available on the hospital grounds. The thirteenth floor serves the orthopedic wards and

the fourteenth floor, chest and burns service. On the fifteenth floor are all main surgeries in the building including the main surgical amphitheater which seats approximately 200 spectators, and six surgical operating suites.

The sixteenth floor houses internes and resident doctors. On this floor there are glass cases for display of pathological specimens. Surgical supplies are prepared and sterilized on this floor. Wards on the seventeenth floor are equipped so that they may be isolated in case of epidemic or for contagious diseases. The floor has a complete kitchen and other facilities so that it may be operated independently of all other wards in the hospital.

There are two wards on the eighteenth floor which are not standard and are not used except in epidemics. Having a complete kitchen and other facilities, these wards may be isolated from other wards in the hospital. The nineteenth floor is intended for patient use only in case of severe epidemic. It consists of unroofed wards and could be used only in fair weather.

PROPOSED REORGANIZATION

By MEDICAL DIRECTOR F. A. CARMELIA, U. S. Public Health Service

Since it is axiomatic that communicable disease recognizes no governmental jurisdictional boundaries, one look with this in mind at the map showing the corporate area of the city of Los Angeles and of municipalities surrounded by or contiguous thereto, should quickly impress upon anyone the futility of attempting effective public health control through a multiplicity of individual health departments, which by reason of jurisdiction limitations can not be practically coordinated, economically administered nor adequately effective, neither separately nor in the area as a whole which represents the scope of the common public health problems.

Owing to the continuous and active interchange of people and products throughout the Los Angeles metropolitan area, no one of the separate communities can isolate itself. The most economical and effective way to control common problems in such a metropolitan area is through a common official agency.

In so far as public health administration is concerned this has been partly recognized; some 40 independent municipalities in the Los Angeles metropolitan area have contracted for and receive public health service from the Los Angeles County Health Department. Furthermore, the annexation of a similar number of formerly independent municipalities in the metropolitan area by the city of Los Angeles, has resulted in their receiving public health services from the Los Angeles City Health Department.

In addition to the city of Los Angeles there are only three other independent municipal health departments of importance in the metropolitan area—those in the city of Long Beach with a population of about 180,000 (1938), the city of Pasadena with a population of about 90,000 (1938) and the city of Beverly Hills with a population of about 25,000 (1938). All of these cities maintain separate health departments. Practically all of the public health services rendered in Los Angeles County are furnished through five health departments as follows:

Health Department	Population Served (1938)	Expenditures 1938	Per Capita Equivalent
City of Pasadena -----	90,000	\$49,762	\$0.553
City of Long Beach -----	180,000	64,475	0.358
City of Beverly Hills ----	25,000	10,000	0.400
City of Los Angeles -----	1,500,000	702,908	0.471
County of Los Angeles----	900,000	999,605	1.111
Total -----	2,695,000	\$1,917,750	\$0.712 (Av.)

The activities of these five health departments are fairly well coordinated; however, there is considerable overlapping and duplication in some of their respective activities, particularly as between the county health department and the city health department. There also is considerable overlapping and duplication of work as between the various public health departments and the hygiene activities of the public school districts.

The ideal set-up for public health work in the metropolitan area would be a single, county-wide health department to furnish public health services (including school health services) to the entire population in all the incorporated cities and municipalities as well as in the nonincorporated area of the county. The State of California has enacted legislation authorizing such a set-up as regards general public health services, through one of three different arrangements.

Specifically in so far as the city of Los Angeles is concerned, its city charter granted by the legislature of the State of California authorizes the city government to merge any of the activities authorized by the charter, with similar activities of the county government or to contract with the county government for their performance. Such arrangements have already been made by the city with respect to the assessment by the county assessor's office of the fair market valuation of all taxable property in the city and in regard of the collection by the county tax collector's office of taxes levied by the city on taxable property in the city.

The Health and Safety Code of the State of California authorizes a county health department and the health departments of incorporated cities and municipalities within the same county to enter into contracts whereby the county health department may furnish public health services to any incorporated city or municipality on a contract basis; or any incorporated city or municipality may furnish public health services to the county on a contract basis. Such contracts have already been made whereby the Los Angeles County Health Department furnishes public health services to some forty smaller incorporated cities and municipalities having a total population (1938) of about 500,000.

It is interesting to note in passing, that contracts for the fiscal year called for payment to the county for such services of sums representing a per capita payment of from 5 to 82 cents whereas the average per capita expenditure by the county for public health services was \$1.11. It would appear that the payment made to the county for such public health services should be on a per capita basis and equal to the average per capita expenditures of the county health department. On the basis of average per capita expenditure, it cost the county \$1.11 to furnish public health services to these incorporated cities and municipalities under contract for which the county received an average of \$0.147 per capita in payment.

The city of Los Angeles provides the county with about 55 per cent of its income derived from county tax levy on city property but the city of Los Angeles receives no public health services from the county while some forty other incorporated cities and municipalities in the county receive public health services from the county under contract for an average per capita cost of 14.7 cents. The question might well be raised as to why the cities of Pasadena, Long Beach, Beverly Hills and Los Angeles have continued to support their own health departments under such circumstances.

Metropolitan Health District

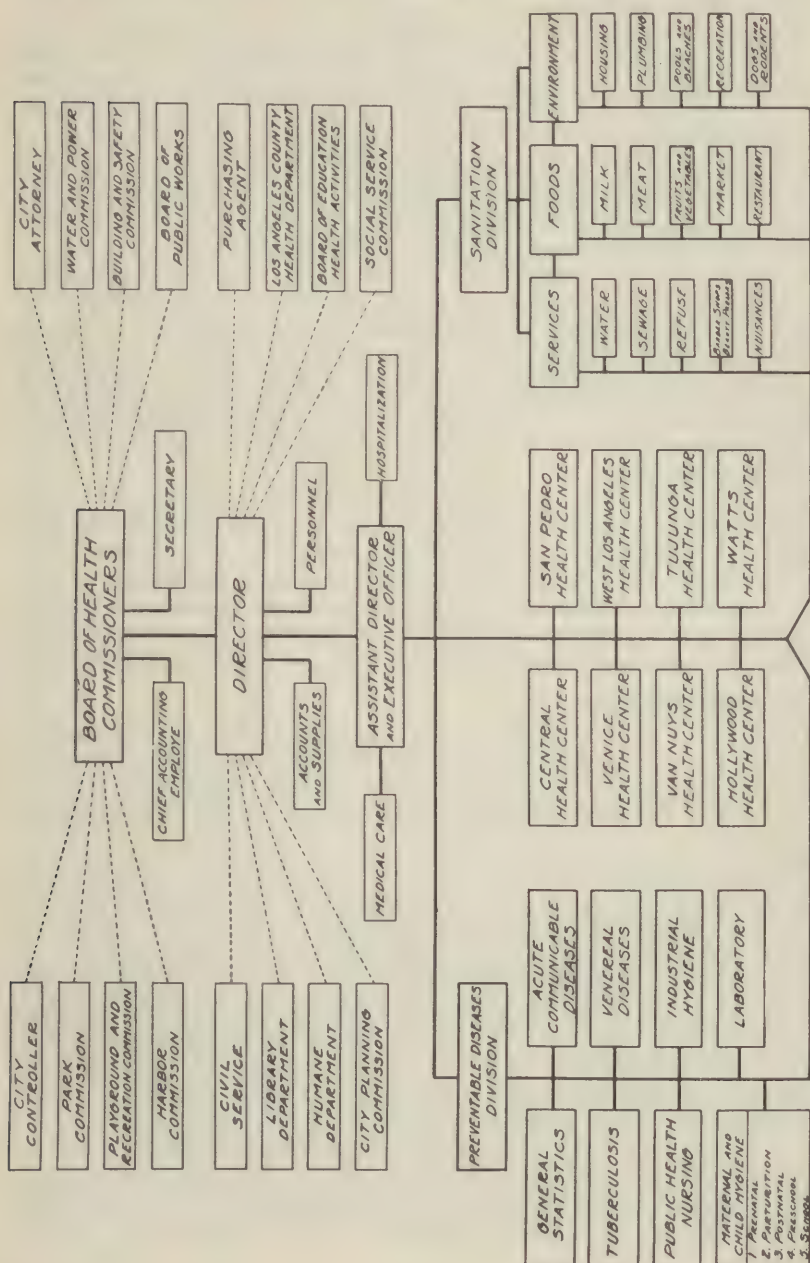
In addition, the Health and Safety Code of the State of California contains what is probably the most advanced and best local public health organization law in the entire United States—the California Local Health District Law (see appendix e). This model public health

organization legislation parallels in public health organization, the long established public school organization which is practically universal throughout the United States and has been tried and proven in many years experience. A better public health organization law than the California Health District Law could scarcely be drafted to order to



suit the public health needs of a metropolitan area such as that in Los Angeles County.

It is definitely recommended that appropriate consideration be given to the establishment of a metropolitan health district to include the city of Los Angeles and at least contiguous territory; of course the ideal would be to have such a metropolitan health district ulti-



PLAN of REORGANIZATION RECOMMENDED FOR LOS ANGELES CITY HEALTH DEPARTMENT

mately which would include all incorporated and nonincorporated territory in the whole of Los Angeles County. No other remedy is apparent with respect to the present inequitable practices and almost chaotic jurisdictional aspects as regards public health administration in the metropolitan area. The formation of a health district has a very definite advantage in serving to remove public health activities from the political arena.

The question of territorial jurisdiction involves practically every phase of public health activities in the metropolitan area, and makes sanitation of foods and beverages, enforcement of effective quarantine, and so on, particularly difficult of adequate supervision by any one of the present public health agencies. Not only could more effective public health be secured under a metropolitan health district plan, but duplication of administrative overhead expense and duplication of considerable field work and expense would be eliminated at a substantial saving in such at present multiple expenditures.

In any event the present city health department should be reorganized as soon as practicable along modern lines. There is an accompanying chart of proposed reorganization recommended as a result of this survey. This reorganization plan with only minor changes at the top and as regards health districts, would do just as well for a metropolitan health district if formed, and consequently that possibility need not cause deferment of its immediate application to the present city health department.

It is believed that this organization chart is pretty well self-explanatory when viewed in connection with the discussion of activities and detailed recommendations made in the various sections of this report and only brief further discussion thereof is necessary.

In essentials, the plan of reorganization of the city health department contemplates three main administrative parts: (1) central administration, (2) bureau of preventable diseases, (3) bureau of sanitation.

Central Administration

The present office of the city health officer should be reorganized as the director's office and be provided with the necessary secretarial and clerical personnel. The salary of the director should be not less than the salary range of \$8,000-\$10,000 per annum for a department of this size.

The director should devote the major part of his time and attention to planning the work of the department, to directing the general work of the department, and to the evaluation of the work being carried on. He should periodically visit and review the activities of each principal subdivision. He should "take stock" annually of the status of the work of the department; for this purpose the Standard Appraisal Form for Local Health Work issued by the American Public Health Association should be used; one copy should be filled in and completed for each year of operation, and the record therein preserved in the files of the department for comparative reference.

Self-application of this appraisal form annually, will be found to be well worth while not only in the evaluation of accomplishments, but equally important in the guiding and planning of the work to be done. Also the head of each subdivision office in the department should

utilize for himself the appropriate sections of the appraisal form in connection with the administration of his part of the work of that office.

Until such time as the charter can be amended to permit the city health department to maintain its own legal representative in the office of the city attorney (as is now provided for certain departments), to assist in handling legal matters in regard of the work of the city health department requiring intimate knowledge of the work and objectives of the department, there should be included in the office of the director, a legal advisor to the director who should be an attorney-at-law and preferably one with special knowledge of, and experience in, the work of the health department. The personnel of the department already includes such an individual in one of the sanitation divisions, who holds the highest degree in legal training—LL.D. Consideration should be given to his promotion to the new position of legal adviser to the director; this new position should be in the salary range of \$4,000-\$5,000 per annum.

Two sectional offices should be organized under the direct supervision of the director; one sectional office should handle all matters of accounting, and the procurement of supplies through the city purchasing agent. The head of the sectional office should be a skilled accountant, preferably a C.P.A., and should receive a salary of \$3,600 per annum and he should have an assistant who is qualified and experienced in supply and material work and who should receive a salary of \$3,000 per annum. The second sectional office should be charged with all matters and records relating to the entire personnel of the department and the procurement of new personnel through the city civil service establishment. The head of this office should be experienced in personnel management and should know the intimate details of the work and objectives of the various subdivisions of the department. The personnel manager should receive a salary of \$3,600 per annum. The department already has among its personnel an employee with a flair for personnel organization work in one of the sanitation offices who could be considered for this position.

The director should exercise his direction and supervision of the work of the department through an executive officer who should be the assistant director. The qualifications of this new position should be practically equal in terms of education and training to that for the director, differing only in the age and length of experience required. The required qualifications should be at least equal to the minimum qualifications prescribed by the Conference of State and Territorial Health Officers (see appendix f) for staff medical officers of populations in excess of 50,000, plus not less than 5 to 8 years successful administrative and public health experience in an effective public health organization of comparable size and responsibilities. The assistant director should automatically become the acting director during any absence of the director. The assistant director should receive an entrance salary of \$6,000 per annum.

Special attention should be given to filling the new position of assistant director at the present time; the present city health officer will retire for age in about two years under the city civil service system

and the very best way of procuring his successor would be through careful selection of the person selected for appointment to the position of assistant director, with the view of promoting the assistant director to the director's position when it will have become vacant, provided the assistant director proves himself in the interim. Such a procedure would have the very definite advantage of providing a successor to the present city health officer upon his retirement, who has had the opportunity of becoming oriented in the local public health problems and would provide the Board of Health Commissioners an opportunity for the observation for some two years of the prospective new director. The assistant director under the plan should be charged with the direct supervision of the medical care and hospitalization activities of the department and the coordination of the district health centers, plus giving effect to the general direction exercised by the director over the activities carried on by the Bureau of Preventable Diseases and the Bureau of Sanitation. The direction of the present medical care activities "on call" to homes and the arrangements for the hospitalization of city cases of communicable or contagious diseases in the Los Angeles County General Hospital should be the direct responsibility of the executive officer, and in addition he should be the coordinating officer for the various activities of the department both within itself and in its relations to the public health activities of other official and unofficial agencies in the city.

Should the Georgia Street Receiving Hospital be transferred to the city health department, it should be placed under the hospitalization sectional office and consideration should be given to designating its chief surgeon as chief of that sectional office. A chief physician should also be designated to head up the medical care sectional office if this type of direct medical care is continued; consideration should be given to turning this work over to the county department of charities who are already engaged in such activities and whose responsibility it is under the laws of California.

The bureau of preventable diseases should comprise eight principal divisions: (1) general statistics, (2) control of acute communicable diseases, (3) control of tuberculosis (4) control of venereal diseases, (5) industrial hygiene, (6) maternal and child hygiene (7) public health nursing, and (8) public health laboratory. The various sections of this report deal in considerable detail with the organization and function of each of these sections. The administrative heads of each of these eight divisions in the bureau of preventable diseases should be carefully selected for the respective position, should meet the qualifications, respectively, recommended by the Conference of State and Territorial Health Officers and have had specific training and experience in the respective specialty; each should receive an entrance salary of not less than \$4,000 per annum.

Bureau of Sanitation

The bureau of sanitation should be headed by a new position—chief of bureau. The chief of this bureau should be a professional sanitary engineer or public health engineer of wide public health experience and should possess at least the educational and training qualifications recommended by the Conference of State and Territorial Health Officers for staff positions in jurisdictions having over 50,000 population. In

addition to these qualifications the new appointee should have had since graduation in public health at least five years successful experience in an important position in a large health department. This position is the No. 4 position in the city health department and great care should be exercised in making the selection for appointment. The position should carry an entrance salary of at least \$5,000 per annum.

The bureau of sanitation should be divided into three principal administrative divisions: (1) division of food sanitation, (2) division of environmental sanitation, and (3) miscellaneous services division. The administrative heads of each of these three divisions in the bureau of sanitation should be carefully selected for the respective position, should meet the qualifications, respectively, recommended by the Conference of State and Territorial Health Officers and have had specific training and experience in the respective specialty; each should receive an entrance salary of not less than \$4,000 per annum.

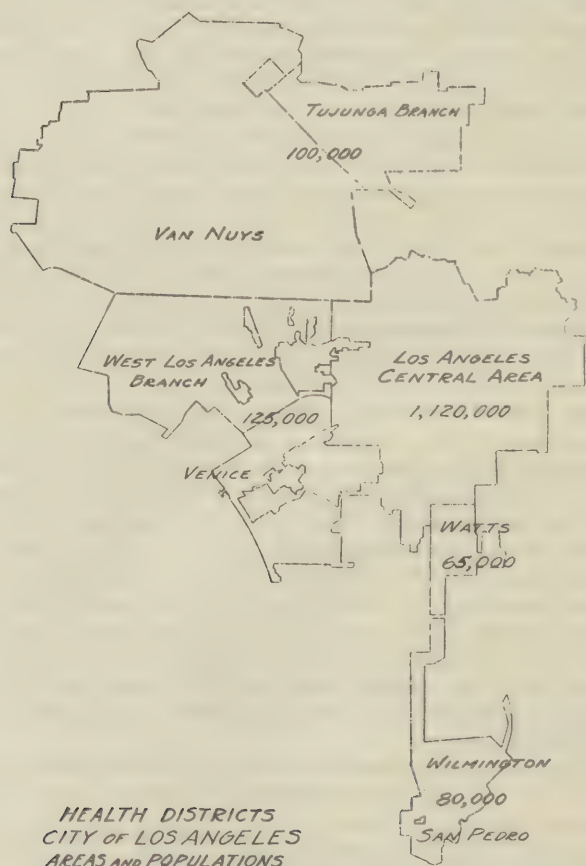
The chief of the division of food sanitation should be well versed in public health administrative practice and in the sanitation of milk, meat and other foods. The personnel of the city health department already includes an employee who possesses the qualifications believed necessary for satisfactorily filling the position of chief of the food sanitation division. This employee is a veterinarian and has had extensive experience in milk and meat sanitation. The division of food sanitation should be subdivided into five sections, each section to be in the immediate charge of a supervising sanitary inspector, i.e.: (1) milk, (2) meat, (3) fruits and vegetables, (4) markets, and (5) restaurants and food preparing establishments. Each of these supervising sanitary inspectors should meet the qualifications recommended by the Conference of State and Territorial Health Officers and have had specific training and experience in their respective specialty; should receive an entrance salary of \$3,000 per annum.

The chief of the environmental sanitation division of the bureau of sanitation should be a qualified sanitary engineer who has had specific education, training and experience in matters of environmental sanitation. During the absence of the bureau chief he should become acting chief of the bureau. This is a new position and great care should be exercised in selecting the appointee. The division of environmental sanitation should be divided into five principal sections, i.e.: 1, housing; 2, plumbing; 3, swimming pools and beaches; 4, parks and recreation centers; 5, control of dogs and rodents. Each of these sections should be in charge of a carefully selected supervising sanitary inspector who has had specific training and experience in the work of his respective section and should receive an entrance salary of about \$3,000 per annum.

The division of miscellaneous services of the bureau of sanitation should also be in charge of a qualified sanitary engineer or public health engineer who has had specific training and experience in public water supply, sewage disposal and refuse disposal. While the reorganization chart shows the activities of the division of miscellaneous services to be subdivided into five sections, it is not believed necessary to set up separate administrative sections for all of the work of this division; public water supply is a function and activity of the city department of water and power and the activity of the chief of the

miscellaneous services division in regard of public water supply should be principally that of surveillance in order to protect the responsibility vested under state law in the city health department in such matters; similarly, sewage and refuse disposal are each functions of other city departments and the chief of the miscellaneous services division should only exercise such surveillance thereof as indicated to protect the interests and responsibility shared by the city health department in these matters.

The miscellaneous services division should also handle the sanitary inspection of miscellaneous establishments such as beauty shops, barber shops and similar nonfood establishments. If this inspection work is continued in volume then this section should be in the immediate charge of a supervising sanitary inspector who has specific training and experience in such work and who should receive a salary of \$3,000 per annum. Likewise, a new section should be organized to make



primary investigation of nuisances reported to the city health department which are not referable to some other agency of the city government as coming within their jurisdiction; following such primary inspection of nuisance complaints held to be within the jurisdiction

of the city health department, this section should take appropriate action, referring suitable complaints to the proper division of the bureau of sanitation for attention as regards the special activities of those divisions; miscellaneous nuisance complaints not coming within the jurisdiction of environmental sanitation or the division of food sanitation, should be handled appropriately by the miscellaneous services division. This section should be in charge of a supervising sanitary inspector who has had training and experience in the administrative handling of nuisance complaints.

District Health Centers

The reorganization plan proposes the establishment for the present of at least eight district health centers. It contemplates that each of these health centers should, within its district, constitute a functional replica in limited degree of all the appropriate functions of the city health department itself; these health centers should have a considerable degree of autonomy in the detailed administration of their work within their respective district jurisdictions and ordinarily should constitute a self-sufficient unit in terms of personnel and equipment. A full-time medical public health officer should be placed in charge of each district who should receive a salary of \$3,000-\$3,600 per annum. District health officers selected for appointment should possess, in addition to a degree in medicine and a license to practice medicine in the State of California, special education, training and experience in public health activities and should meet the minimum qualifications recommended by the Conference of State and Territorial Health Officers for medical officers in public health services.

The work of the various district health centers should be supervised and coordinated by the assistant director, both as between the various districts and as between the districts and the bureau of preventable diseases, the bureau of sanitation, the office for medical care and the office for hospitalization.

The district health officers, in addition to exercising administrative supervision of the employees of the city health department assigned to their district, also should be district executive officers responsible for the proper carrying out within their district of policies of the department and of the director, and the instructions of the assistant director and the chiefs of the bureaus of preventable diseases and sanitation; the district health officer also should fully cooperate with and give effect to the district programs of the chiefs of the various sections for the special public health activities of the two bureaus.

Five-Year Plan

Recognizing that such an extensive reorganization of the city health department is not susceptible of accomplishment at one time by reason of immediate lack of funds, scarcity of adequately trained personnel and the necessity of accomplishing the reorganization without interfering with the current responsibilities of the department, it is proposed that a five-year plan be adopted whereby certain steps will be taken each year for five years to gradually refinance and revamp the organization and work of the department.

The present expenditures for public health work in the city of Los Angeles average 47¢ per capita (1938); the minimum average

expenditure for public health services that has been found practicable in providing adequate public health services in a community in the United States is \$1 per capita. To attain such an average expenditure, the city of Los Angeles would have to more than double its present expenditures for public health services and it is proposed that the present city health department budget of approximately \$700,000 per annum be increased annually by 20-25 per cent, or \$140,000-\$175,000, each year for five years.

The city health department is particularly deficient in adequately trained and experienced public health personnel in key positions in the department and the first objective should be to secure the services of such personnel in the first of the five years in the following positions: Assistant director, chief of bureau of preventable diseases, chief of bureau of sanitation, chief of the general statistics division, chief of the venereal diseases division, chief of the maternal and child hygiene division, chief of the industrial hygiene division and an industrial hygiene engineer, chief of the division of environmental sanitation, five district health officers, chief of the office of accounts and supplies and personnel officer.

With these key positions in the department's organization properly filled by qualified appointees, the details of giving effect to the reorganization and changes recommended in these various respective offices should be left to the consideration of and application by the new chiefs of the various divisions or sections, respectively, within the scope of the recommendations contained in this report. During the first year the necessary subordinate personnel and equipment should be provided for the establishment of at least the nucleus of the new divisions of general statistics, industrial hygiene and maternal and child hygiene. In addition, the recodification and clarification of the public health section of the municipal code and other ordinances should be accomplished in the first year.

The second, third, fourth and fifth years should be devoted to giving effect to such detailed plans as will be developed and which will require considerable additional subordinate personnel, office and clinic facilities, equipment and so on. The five-year plan will have the advantage of providing a period of time in which the additional subordinate personnel can be recruited with careful selection. The aim in each of the second, third, fourth and fifth years should be to complete the completed reorganization of one or two units per year in terms of functions, additional personnel, facilities and equipment.

New Building

All clinic activities and the major portion of the inspection activities should be physically separated from the central administrative office. During the first year, suitable provision should be made for the housing of current clinical activities of the department in rented outside quarters or otherwise and in providing clinics in the district health centers; particularly such provision should first be made for the central clinic activities not now carried on in the health department building.

If these activities were so decentralized, it would accordingly modify the problem of providing adequate housing for the administrative offices of the city health department. The present city health

department building at Temple Street is scheduled for early demolition. If these clinical and inspection activities were separated from the administrative aspects of the work of the city health department, it would appear that adequate administrative offices could be provided for the city health department in the city hall building; this might be an advantageous arrangement.

The office of the director and the assistant director, together with the administrative offices of the chiefs of the bureaus of preventable diseases and sanitation, including office space for the division chiefs of these bureaus, all should be provided in one administrative unit. It is understood that there is considerable space in the city hall building under lease to the county which could be made available for city usage and it would appear that sufficient of this space could be provided for housing the executive and administrative offices of the city health department in the city hall. It is believed that such provision would be preferable and more advantageous than making provision for housing the entire consolidated city health department in a special, newly constructed or rented building.

If the Georgia Street Receiving Hospital were transferred to the city health department and the space therein now used by a bureau of the police department were vacated, the vacated space would provide space needed by the city health department for central clinic activities and possibly also for the inspection services, thus reducing the necessity for new construction or outside rented facilities to a minimum.

APPENDIX "A"

MUNICIPAL WATER SUPPLY

The water supply of the city of Los Angeles is derived principally from the sources owned and controlled by the city through its department of water and power. There are some small public, semi-public and private water supplies which will be considered in turn.

Municipal Supply

The municipal supply of the city is derived from a number of sources, the Los Angeles River and tributaries, Owens River (Los Angeles Aqueduct), and various wells. The original supply of the city was taken from the Los Angeles River and has been used continuously since 1781, when the pueblo was founded. Section 218 of the present city charter states as follows:

"The city of Los Angeles shall continue in the ownership and enjoyment of all the rights to the water of the Los Angeles River, heretofore vested in it, its predecessors or predecessor, including the Pueblo of Los Angeles, and is hereby declared to have the full, free and exclusive right to all the water flowing in the said river at any point from its source or sources to the intersection of said river with the southern boundary of said city, and also the ownership of, and the right to develop, economize, control, use and utilize, all water flowing beneath the surface in the bed of said river at any point or points between the points of termini above named."

Section 219 of the city charter states in part: "The city shall not sell, lease or otherwise dispose of its rights in the waters of said Los Angeles River, in whole or in part." It would appear (offhand) that the city is permanently dedicated to the use of the river for water supply purposes alone. Whether this may be entirely wise or not depends upon future developments in the San Fernando Valley. Water is collected in underground galleries and wells in and along the Los Angeles River bed. Wells flow by gravity into the collecting galleries during the winter months (rainy season) and are pumped during the summer months (dry season). The present production of water is 16 m.g.d. from the headworks (galleries) and 26 m.g.d. from the wells (Crystal Springs). This supply was sufficient until the city's growth reached the stage of maximum water consumption of the available supply. In 1907 construction was started on the Owens River-Los Angeles aqueduct, a project 238 miles in length intended to tap the upper waters of the Owens River, fed by snows on the high Sierra mountains. In 1913 this project was completed and approximately 200,000,000 gallons per day were made available. This water from its intake in Owens Valley near Mt. Whitney passes through 142 tunnels with a total length of 53 miles; 12 miles of inverted siphons; 24 miles of open unlined conduit; 39 miles of open, cement-lined conduit and 97 miles of covered conduit. Water empties into 34 storage reservoirs along and

at the end of the aqueduct. In addition to the several open reservoirs within the city there are a great many storage tanks. The total capacity of the storage system, 70 reservoirs and tanks, is in excess of 56 billion gallons or about 11 months' storage at present rate of consumption of aqueduct water.

During April, 1939, an eleven-mile tunnel through the Mono craters was holed through. Since 1934, the department of water and power has been working on this project to tap drainage from the Sierra mountains into Lake Mono. Completion of the project will make available an estimated additional 90,000,000 gallons per day.

The water department uses or holds in reserve several series of wells. At the time of the survey the Mission wells, west of San Fernando, were in service continuously, producing 3,000,000 gallons per day. Flowing wells in Owens Valley are in service. The North Hollywood wells are the principal standby, producing 60 million gallons per day. An underground gallery in the Tujunga River bed produces about 100,000 gallons per day. Not including the headworks, Crystal Springs of the Mission wells, the city has a reserve water supply developed from wells within the city of 100 million gallons daily. Including the wells and galleries in use, a supply of 145 million gallons daily is available if for any reason the aqueduct, a single line, should fail. This is about equal to the winter minimum domestic consumption and about two-thirds of the domestic consumption for the balance of the year, but only about one-third the maximum consumption, including irrigation. During the fiscal year 1937-38 the maximum consumption of water was as follows:

	Month	Week	Day	Hour
Rate—Domestic c.f.s. -----	332.5	325	366	481
Rate—Irrigation c.f.s. -----	283.2	304	316	415
Rate—Total c.f.s. -----	615.7	629	682	896

The minimum consumption during the month of February was domestic 200.6 c.f.s., irrigation 1.3 c.f.s. and total 201.9 c.f.s.

The collection, transportation, storage and distribution of water presents definite sanitary problems which the water department recognized several years ago in forming a sanitary engineering division with a sanitary engineer in charge. The functions of this division are to operate purification plants, treat reservoirs, make field investigations and carry on field projects to insure safe, potable drinking water and to provide necessary laboratory assistance and control supplementing field activities.

The treatment of the city supply consists of a series of impounding and storage reservoirs where silt and other debris may be dropped or collected, and chlorination at stated periods. Chlorination is started in the fall with the beginning of the rainy season and continues without break throughout the winter and spring until bacteriological examinations show the water to be colon-free for 30 days. Chlorination of the Los Angeles River and the Tujunga Canyon supplies is constant. The Maclay high line is also chlorinated continuously as water in this line has no further settling before consumption. Insect control in the reservoirs is secured by stocking them with fish, both top and bottom feeders. Overstocked reservoirs are seined and public fishing is never

permitted. In fact the public is not allowed immediate access to any reservoir even where they may be landscaped. Certain surrounding areas are open during the day to the public, never at night. Sanitary patrol of the reservoirs immediately ahead of the distribution system is well-maintained. Algae control is secured either by covering tanks and small reservoirs and by judicious treatment with copper sulphate of open reservoirs. Ultra-violet ray meters are used to determine whenever copper sulphate is to be used. A method of distribution has been developed using a fine-ground salt dispersed vertically through a gasoline-motor driven blower. Chlorine is occasionally used for the same purpose.

Nearby reservoirs are protected with paved roads serving as storm-water catchment conduits with low walls on the near side to prevent surface waters from washing into the reservoirs. Storm waters are led around to waste in regular storm-water drains. Upper reservoirs are not so provided but will be as soon as such development becomes financially possible. Cattle are permitted to graze on lands adjoining the two San Fernando reservoirs and not under the control of the water department. However, these reservoirs, the first in the city into which aqueduct waters flow, are by-passed to permit flows around the reservoirs. The capacity of the by-pass is about 100 c.f.s. and it therefore is used only when an inflow of surface water raises the turbidity of the water at the outlet of the lower reservoir to an objectionable degree. Some pollution, bacterial and other, enters these reservoirs and the first of the chlorinators have been installed at the outlets from them, one at the outlet to the Chatsworth high line, emptying into Chatsworth reservoir and one on each of the two conduits leading from the lower reservoir. Chlorination is also practiced, in season, below the Hollywood, Franklin Canyon and Stone Canyon reservoirs. Liquid chlorine is used and the dosage regulated with the most modern type machines. Hypochlorite is used at Hollywood Knolls and Tujunga. Ammonia is available for use with chlorine whenever objectionable chlorinous tastes and odors develop.

Laboratory checks and controls are secured through a modern, well-equipped, well-lighted and adequately-staffed laboratory. Bacteriological sample examinations follow general procedures outlined in "Standard Methods of Water Analysis" and also meet the requirements set forth in Treasury Department Standards. Microscopical examinations are made for plankton and larger forms of animal and plant life. Complete and partial sanitary chemical examinations are made for control of quality of the water and mineral analyses are routine or for industrial, agricultural or domestic usage. The schedules for collection of samples for the various examinations indicate the close watch maintained over the supply. Ninety-six points from the inlet of Upper San Fernando reservoir to the Terminal Island tank are sampled daily for bacteriological examination from Monday to Friday; 60 samples are collected once or twice a week from 31 scattered points within and without the city including Bouquet reservoir and many of the wells; 33 points are sampled on Saturday and 5 on Sundays; and 24 points along the aqueduct are sampled once, twice or three times a month. Sixty-five points are sampled for plankton from twice a week

to alternate months depending upon their location and relative importance in the reservoirs and conduit system as determined from long sampling experience. Mineral samples are taken from 102 points from once weekly to alternate months depending upon relative importance of sampling points. Samples for partial or complete sanitary chemical analyses are collected twice a month to every two months from 96 points and samples weekly from 3 points. In addition mineral and sanitary chemical samples are collected from wells when operating. The laboratory operates under a certificate of approval from the State Department of Health.

During 1937-38 the domestic consumption of water by an average of 267,153 consumers was 170 m.g.d. for the year, ranging from 130 to 215 m.g.d. During this same period the water department received 4,530 complaints from consumers, of which 3,027 were about dirty water, 779 were about tastes and odors, 585 were classed as miscellaneous, and 139 claimed illness due to the water. No dysentery or typhoid fever cases were involved. The estimated population served was 1,400,000. During the same period 29,471 bacteriological; 5,769 plankton; 2,016 sanitary chemical; and 5,238 mineral examinations were made, in addition to field samples as follows: 3,458 reservoir outlet quality; 5,514 reservoir plankton control; 4,416 residual chlorine; 2,996 turbidity; 8,661 temperature and 486 special investigations.

Of 2,384 samples collected during this period from untreated sources of supply, 8.26 per cent had 3 or more 10 c.c. tubes positive for *E. Coli*. Of 11,920 ten c.c. portions of these samples, 9.90 per cent were positive for *E. Coli*. Of 25,771 samples collected from the distribution system, 0.90 per cent had 3 or more ten c.c. tubes positive for *E. Coli* (5 per cent allowed in Treasury Department Standards) and of the 128,855 ten c.c. portions of these samples, 1.84 per cent were positive for *E. Coli* (10 per cent allowed by Treasury Department Standards). Averaged determinations covering the year 1937-38 were as follows: Turbidity, aqueduct sources 5 p.p.m., river sources 3 p.p.m., average 5 p.p.m.; color, aqueduct 11 p.p.m., river 2 p.p.m., average 9 p.p.m.; alkalinity, aqueduct 127 p.p.m., river 190 p.p.m., average 140 p.p.m.

The fiscal year 1937-38 saw two major emergencies confront the water department and present immediate and urgent problems affecting the water supply of the city. In November, 1937, an earth slide in Elysian Park crushed the Crystal Springs (Los Angeles River) supply conduit and a portion of another conduit. The reservoirs fed by these conduits supply the downtown business district. In March, 1938, heavy rainfall created a flood in the Los Angeles River and tributaries. Damage was particularly great in the San Fernando Valley and parts of the large conduits were washed out. Pollution in both cases entered the systems, principally storm water and little actual sewage. The dilution of the wastes during the flood was tremendous. Prompt action by the water department isolated and cut off affected areas which probably accounts for the absence of water-borne disease more materially than the "boil water" notices issued by the health department. Fortunately the city's water storage and distribution system appears to be so designed that during emergencies of this kind, water routing can be shifted from normal channels.

Wells held in reserve for such an emergency were cut in and in one area, particularly, symptomatic dysentery or diarrhea occurred with several hundred cases. These lasted for the most part about 24 hours. The water department is of the opinion that the cause was excessive iron although its bacteriological findings also indicated that the cause may have been due to bacterial infection of the water in the wells or of the water that was dormant and possibly stagnant in the system. Iron, while frequently a nuisance, rarely has any hygienic significance and certainly not in such quantity that several hundred cases of sickness occurred and disappeared in such a short period of time. In spite of this occurrence and others reported from time to time, usually following heavy drafts of water in certain areas or pipes, usually after fires, the water of the city of Los Angeles appears to be of good quality and excellent sanitary safeguards and controls are provided. The sanitary engineering staff is competent and well-supervised, appears to know what it is doing and where it is going. The reports of the division indicate a great deal of work and accomplishment, with the production of a water which does meet rigid standards of quality and sanitary safety. There may be some further control secured but it is not within the purview of this report to discuss and recommend the functions of another city department.

The relationship of the health department and the water department is generally good. Minor complaints received by the health department and transmitted to the water department are given prompt attention. Major cross-connection elimination has been largely a joint undertaking. Services cut off by the water department for nonpayment of bills have been restored at the request of the health department where sanitary nuisances may and do result from a lack of water. The two departments are split on two major questions, back-siphonage and minor cross-connections and outbreaks of disease reported to be water-borne.

With regard to the problems of back-siphonage and minor cross-connections, the water department has become impatient at what it considers delay by the health department in attacking these problems. Accordingly, operating under sections of the health code, it has instructed inspectors to enter on private premises for the purpose of checking plumbing and water-piping installations for the purpose of determining whether or not any possibility of the entry of sewage or waste waters into the water distribution system may be possible. It has further issued notices of correction under the sections of the health code. It is noted that the water department, definitely dedicated to the securing and distribution of a safe and potable water supply, is determined to insure its consumers that the supply is safe at all times and not subject to contamination or even pollution from cross-connections or unsatisfactory plumbing. Unfortunately the health department has not been freely consulted in this campaign and feels, perhaps rightly, that its prerogatives in the field of public health have been infringed upon. There is this to be considered in justification for the health department's apparent delay in acting on those two problems. The water department, dependent on its resources and its budgets adopted

within itself and approved in toto only by the city council, is able to employ inspectors for this service at will while the health department, dependent not only on the city council for approval of its budget and each single item in the budget, but also on its approval by the department of budget and efficiency, can not employ inspectors at will. As a matter of fact the department is now spread so thinly throughout its various activities that it must of necessity tackle those things first which appear to it to be of paramount importance. There is also to be considered, again in defense of the health department, that the water department points with pride to its record of no water-borne typhoid or dysentery (excepting the questionable outbreak following the 1938 flood) and accepting its own figures, there is some reason for the lack of enthusiasm on the part of the health department to jump into a new activity. It would appear that the water department was attempting to expand at the expense of the health department to the point of exclusion of the latter from the water supply and distribution field entirely.

The question of reported water-borne outbreaks has always been one of considerable concern to both departments. The health department, with (skilled) investigators and epidemiologists at its disposal, may point to some gastro-intestinal outbreak as water-borne in the absence of any other common factor. The water department naturally does not welcome any suggestion which seems to imply a criticism of its control and operations, or of its employees. Its laboratory is better-equipped and engaged in water examinations and analyses alone and, more important, it not only follows standard methods, but its procedure follows that required for Treasury Department standards. The health department, with less adequate facilities, space and equipment, and with but one employee engaged in water examinations (bacteriological) may follow standard methods, but the portions inoculated (2 ten c.c., 2 one c.c. and 2 one-tenth c.c.) do not permit the examinations to be readily reconciled with the requirements of Treasury Department standards. The technician, who makes the examination, spends more of his time on the dissection and examination of rodents for plague. Expert and excellent supervision in the person of the director of the health department laboratories is not always available because of other demands upon his time. The water department naturally depends upon its superior laboratory while the health department places its trust in (trained) field personnel. The bogey of publicity also enters into this problem as the heads of both departments are too often pressed for "stories" before all information may be at hand. In giving out stories, each head naturally favors his own department and a variance appears in the local newspapers and the breach is widened. A complete exchange of information, combined with a mutual respect for each other's capabilities and a mutual regard for the other's limitations would materially settle these differences (which are not so far apart).

Other Water Supplies

There are a number of private water companies, deriving their supplies from wells, which serve scattered areas in the city of Los Angeles. Following is a list of the companies with the number of active services, as of June 30, 1939:

Southern California Water Co.—Sunland area.....	2,464
Southern California Water Co.—South Los Angeles area.....	6,249
Southern California Water Co.—Palms area.....	4,226
Southern California Water Co.—Venice area.....	4,982
Athens Water Company.....	923
Conservative Water Company.....	3,600
Investment Water Company.....	1,124
Palisades Del Rey Water Company.....	172
Manchester Heights Water Company.....	63
Suburban Mutual Water Company.....	216
Pembroke Water Company.....	27
El Jardine Water Company.....	95
Total	24,141

Bacteriological water samples are collected from these supplies every two weeks. A limited inspection is made of the supplies at the same time. Both duties are fulfilled by the sanitary inspector, detailed to this work. Twice yearly routine inspections are made by the sanitary engineer. No estimate is available of the amount of water consumed from these private water companies, nor of the per capita consumption although it may be assumed to be less than from the municipal supply. The number of services represented is about 8.3 per cent of the total, but the domestic consumption probably represents less than 8 per cent.

Bacteriological samples are likewise collected from many points on the Los Angeles city supply system. Given below is a table showing the number of samples collected during the year 1937-38 from all sources by the health department.

Source	No. Samples	Plate Count		Showing Gas	10 c.c. Tubes	
		Under 200/c.c.	Over 200/c.c.		Showing E. Coli	%
City water supply -----	2,344	1,095	1,244	843	129	2.7
Private water supplies-----	648	444	204	75	14	1.1
Swimming pools -----	1,683	1,329	354	2	2	.06
Sea water -----	86	46	40	---	35	20.0
Sewage -----	14	---	---	---	13	---
Miscellaneous -----	20	1	19	---	9	---

The 2.7 per cent of 10 c.c. portions positive for E. Coli compares favorably with the 1.84 per cent found by the water department considering the number of samples collected by both departments, but the number of 10 c.c. portions inoculated per sample by the health department is but 2 as against 5 by the water department. Ten per cent E. Coli positive is allowable under Treasury Department standards. The private water supplies compare very favorably, bacteriologically, with the municipal supply.

APPENDIX "B"

REFUSE COLLECTION AND GARBAGE DISPOSAL

The collection and disposition of municipal refuse is also a function of the City Engineer in the Department of Public Works and is under the direction of Mr. H. P. Cortelyou and the immediate charge of Mr. J. R. Taylor with the exception of incineration which is handled by another section in the same division. According to the municipal code, city wastes must be divided and are defined as follows:

"Sec. 66.00. Definitions.

"For the purpose of this article the following words and phrases are defined and shall be construed as hereinafter set out, unless it shall be apparent from the context that they have a different meaning:

"Combustible rubbish" shall mean paper, pasteboard, carpet, rags, clothing, books, boots, shoes, straw and other combustible packing, barrels, boxes, furniture and similar articles that will incinerate through contact with flames of ordinary temperature.

"Container" shall mean any vessel, tank, receptacle or box used or intended to be used for the purpose of holding noncombustible rubbish.

"Garbage" shall mean all animal and vegetable refuse from kitchen and household waste that shall have been prepared for or intended to be used as food or shall have resulted from the preparation of food.

"Market refuse" shall mean and include decayed and unsound meat, fish, fruit and vegetables from meat, fish, fruit or vegetable markets, and animal and vegetable refuse from such markets.

"Noncombustible rubbish" shall mean ashes, bottles, broken crockery, glass and tin cans and other metallic substances that will not incinerate through contact with flames of ordinary temperature."

The refuse collection division has charge of the collection and disposal both by city forces and by contract, of garbage, noncombustible rubbish and dead animals.

Garbage

The municipal code prevents the conveying of garbage over the streets of the city except by city forces or by the contractor. Collection by the city or by the contractor, is made at the curb or in the alley. Garbage cans may be not less than 3 gallons nor more than 16 gallons in capacity and must be equipped with handles and tight-fitting covers. The owner is required to keep both can and cover clean on the outside. The frequency of collection, principally by the city, is twice weekly in the greater part of the city, three times a week in the close-in apartment-house areas, and nightly in the business districts. Full collection service is given on holidays. The costs of collection and disposal are paid out of general taxes.

The division of waste disposal is constantly making a study of the cost of collection of garbage and have now standardized the 106 garbage trucks in use at the end of the fiscal year 1937-38. These are now 2-man, 1½-ton trucks with 157-inch wheelbase and 6.61 cu. yd. capacity. The bodies are of steel construction, removable from the chassis, and a canvas cover provided. This cover rolls toward the front of the body

when being loaded and is not drawn over the load (from observation) until the body is full and then the canvas is pulled down the load and fastened only by looping over the back end. It was noted that some trucks arrived at the loading stations with the canvas cover loose. Whether or not any of the load was spilled enroute was not ascertained.

The area covered by the city forces is about 42.7 per cent. Separate contracts are entered into by the city for the collection of refuse from the Harbor district, Venice district and San Fernando Valley district. Control over collection and disposal of garbage is secured through the city ordinance prohibiting its transportation through the city. Regulations do not permit the wrapping of garbage in paper although containers may be lined with one thickness of paper to facilitate dumping and to increase cleanliness. About 90 per cent of the city-collected garbage is hauled to the central loading station at 25th and Harriet streets, where all trucks are weighed in and then moved to empty railroad garbage cars under a shed housing a traveling crane. The loaded body of the truck is lifted by crane and the contents emptied into the railroad car. The steel body is also used as a tamper and leveler of the garbage in the car. Liquids, previously weighed in, are allowed to drain out of either end of the car into open catch-basins emptying into the sewers. The trucks are then washed out by a hose and returned to collection service or the garage. It was reported that the bodies were steamed to remove grease collections about once a month. From this loading station the garbage cars are moved over the railroad to the Fontana hog farm, operated by the Fontana Farms Co., which has a contract with the city for its garbage.

Fontana Hog Ranch

While the Fontana hog ranch, located about 60 miles from the center of Los Angeles, and in an adjoining county, does not come within the jurisdiction of the Los Angeles health department and therefore not within the purpose of this survey and report, it is felt that a brief description of this plant is not out of place, especially in view of its possible future relation to the city's refuse disposal problem.

This hog ranch (owned and operated by the Fontana Farms Co.), is located east of Los Angeles in San Bernardino County a few miles east of the city of San Bernardino and about three miles south of the community of Fontana. The hog ranch is served by the Santa Fe Railroad. The ranch itself is nearly 300 acres in extent and there are raised over 50,000 hogs at any time. The hogs are fed by garbage from the city of Los Angeles, under contract with the city, supplemented by alfalfa or other forage grown on the farm and by a mash prepared on the premises and containing ground barley, fish meal, molasses or syrup and other ingredients in the proportions determined by the ranch manager as best suited for the climate and feeding ration. Adequate veterinary service is provided for inoculation against cholera, the treatment of sick animals and protective measures against other swine diseases.

Boars are kept in separate sheds and yards in a section of the farm reserved for them. Farrowing pens and yards are likewise provided and as the pigs grow in size, pens and yards are increased in size until as many as six sows and their litters may be kept in a single yard. As the pigs grow and are weaned they are moved progressively from

yard to yard with greater numbers kept in a yard each time until they reach the fattening pens. Here the diet is changed somewhat. Selected garbage is thrown on the feeding platforms twice daily and the pigs allowed to eat. When they have picked over the garbage and selected what they want they are run out and meal is kept constantly before them to be eaten at will. Brood sows are then run in on the feeding platforms to clean up edible garbage.

Floors of all pens, some yards of farrowing pens and all feeding platforms are made of concrete. Drinking troughs and gutters for running water for drinking or washing water for cleaning are also made of concrete. Almost the first thing that a visitor notices is the scrupulous cleanliness of the platforms, even where acids generated from the garbage have eaten away the surface. The second noteworthy item is the abundant use of water, for drinking, for cleansing, for wetting down the yards and even for (apparently) the enjoyment of the sows and small pigs.

Garbage is loaded at the central loading station in Los Angeles in steel railroad cars with open tops. The garbage is packed in and much of the liquid, and incidentally the weight, is squeezed out and discharged to the city sewers. Simple caps, attached with chains to the body of the car, are used to close the outlets. Experience in the past has taught Fontana Farms, who become the owners of the garbage immediately after it is loaded and moved, that surges take place in the moving cars, often resulting in spillage with subsequent nuisance along the railroad right of way. Surge tanks, consisting of vertical 6-inch or 8-inch pipes are placed in each end of the car. These are apparently sufficient to collect additional liquid squeezed out during the sixty-mile run to the farm and prevent the rolling or surging of garbage within the car. This liquid is, of course, wasted. At the farm the garbage may be unloaded directly by crane to the feeding platforms or into trucks for distribution to those pens not served by railroad track. Garbage comes in after the day collections and also after the night collections. Night garbage is much richer and better hog food, but it comprises, on an average, but 30 per cent of the total received. Coming from restaurants and markets it contains fewer cans and less paper than domestic garbage, is fresher and has less liquid. In spite of the fact that the city ordinance requires separation of refuse and the wrapping of garbage in paper is prohibited, a very large depression at the Fontana hog ranch has been virtually filled in 18 years with non-combustible and combustible refuse, which has been paid for as garbage.

Clean-up crews follow down the feeding lanes, twice daily, after the hogs are through feeding and all platforms are flushed and scrubbed clean, with disinfectant and deodorant used if necessary, the pens and yards raked clean and the gutters and lanes all raked clean. The mixed manure, soil and garbage residue is carried to concrete drying yards where it is spread 6 inches to 8 inches thick and allowed to dry. After 24 to 48 hours, gypsum is added to the drying debris and plowed in. The gypsum absorbs some of the liquid which contains valuable fertilizing elements and aids both in drying and in keeping down odors. In a week or less the material is dry enough to be removed to a grinder and the ground material is stored in piles in the open until sold and hauled away. The debris does not remain on the drying platforms

long enough to permit fly-breeding and heat within the storage piles also discourages fly-breeding. There are flies in plenty about the ranch, however, but not in the abundance noticed at other hog ranches. Disinfectant is freely sprayed over pens and yards where pigs are kept but not where sows and litters are kept. Curiously there were relatively few flies noticed around the brood pens.

Grain and meal for supplementary feeding were stored in warehouses and syrup in tanks. The grinding and mixing platforms were adjacent. With all the open pens, concrete platforms and relatively open feed storage, it was expected that rats and rodents would be plentiful especially as rat-proofing construction was not in evidence. There are no rats or rodents because they are not permitted. Every employee is on the lookout for them and every burrow is immediately gassed. Rodent-control measures are carried on as far as the feeding range of such rodents from the ranch. Every fresh sign is a signal for eradication. Whether this rat control, and rodent control, has any significance other than a saving of food at the ranch, it was learned that the infestation of hogs with trichinae was about 3 per cent according to an investigation by the Bureau of Animal Industry. Other items of interest to other hog-ranchers is that hogs raised on concrete are prone to anemia and, when anemic, are more subject to pneumonia and pigs die when inoculated with cholera serum. Protection on concrete is secured by placing a pile of dirt in the corner of each pen and keeping it replenished as long as sow and pigs are kept therein. The dirt is eaten and apparently affords protection against anemia and pneumonia.

There was some odor and flies were numerous. No attempt was made to find the breeding places of flies, but it was noted that they clustered most around the fattening pens and particularly at the open-top feeding troughs. The general impression of the ranch was that excellent care is taken of both the stock, the pens, and the feeding platforms. Of particular interest is that the Fontana Farms takes around 90 per cent of the municipally-collected garbage at a price of 50 cents per ton f.o.b. cars at central loading platforms when the price of pork exceeds $6\frac{1}{2}$ cents per pound. Thus the city council secured \$118,051.01 from Fontana Farms Co. during 1937-38, including payments deferred when pork prices were low. This averaged \$0.71 per ton of garbage, weighed in trucks before loading.

The city of Los Angeles is very fortunate in possessing this avenue of disposal, providing a revenue instead of a usual additional cost for disposal. This was demonstrated during the rain and flood of March 1 and 2, 1938, when transportation of garbage away from the city was halted by bridge washouts. The Fontana Farms could not accept the garbage because they could not transport it. The city solved the problem, partly by storing garbage in empty cars of the Fontana Farms Co., and partly by dumping into the Los Angeles River from bridges. Cranes were operated on the bridge floors and the garbage-truck bodies were lifted over the rail and emptied into waters which were even then receding. Garbage was stranded on sand bars following the falling of river levels. After 24 hours transportation facilities were restored and both stored and fresh garbage were moved to the Fontana Farms. Although the storage of garbage in the cars was

an accommodation to the city during the emergency, the garbage had been weighed and was charged to Fontana Farms Co., under the contract that delivery had been accepted although much of it was wasted. The city has a steady reliable method of disposal of garbage in this manner, at no cost to it and with considerable revenue accruing to the city. The contract with Fontana Farms Co., expires in 1941 and the prospects facing the city for the disposition of garbage are not pleasant if Fontana Farms declines to renew the contract. Studies made by the company indicate that in 15 years, from 1923 to 1938 the value of garbage as hog food has declined from 68 lbs. gain per ton of garbage fed to 30 lbs. gain per ton of garbage fed. Economically it may not pay the company to renew the contract. The reasons for the decline in value are two-fold. First, garbage and other refuse are not properly separated, giving a greater percentage of paper, cans, and other refuse. Secondly, and of prime importance, the increase in electric refrigeration has caused less wastage of foodstuffs and a decline in hog-food value of the wastes. For instance, studies indicate that garbage from Hollywood, a high-class residential area, has less hog-food value than from less fortunate areas still served largely by the old-fashioned ice box.

The health department is interested in possible developments of garbage disposal in the future for any temporary method of disposal will probably bring in many complaints, although not of primary public health interest. But dumping, for instance, will create an additional problem to be considered and controlled.

West Los Angeles Garbage

Garbage collected by the city and not received at the central loading station comes from the West Los Angeles area. It is disposed at the transfer yard at 2027 Stoner Avenue, to the Kar-Dash trucking company under a three year contract expiring in January, 1940. Payment for the garbage is on a sliding scale depending upon the price of pork in Los Angeles. At a base of \$1.11 per ton of garbage when pork is priced between 9 cents and 11 cents per pound, the city received \$1.01 average for the year 1937-38. Approximately 10 per cent the city-collected garbage is disposed from this area.

Future Garbage Disposal

The board of public works and the city engineer realize that the city is faced with a serious problem of garbage disposal whenever hog ranches cease to take the waste from the city. It can not be predicted what the outcome will be in September, 1941, if the Fontana Farms refuse to renew their contract for economic reasons or others such as a demand to stop garbage-feeding of hogs as a measure of trichinosis control. Some garbage may always be disposed to hog farms but it appears doubtful if all the city garbage may be disposed in this manner, assuming the Fontana contract is not renewed. Accordingly the city has secured considerable information on garbage disposal methods and has conducted experiments in garbage dehydration. If this method of disposal should be installed, the dehydrated materials must also be disposed and at present the value of by-products, grease and tankage, is low. Incineration is not available at present and apparently is not being considered.

With regard to trichinosis, no information was secured concerning the infestation of swine with trichinae in this area, excepting Fontana Farms which reports 3 per cent, a not very high figure for garbage-fed hogs. Cooking of garbage to kill the parasites is not feasible in this area due to the large consumption of citrus fruits. Permitted to pick over uncooked garbage the hogs will push aside citrus rinds along with other undesirable foodstuffs. Cooking releases the citric acid in the peel and not only makes the resulting mess unpalatable to the hog, but also definitely reduces its fattening value, even to the point of where growth may be maintained but no fat at all is gained. Cooking further spreads the grease through the garbage and the mess becomes a soupy mixture which the hogs not only dislike but can not pick over to secure choice and other portions of food value. Other feeds must be used in larger quantities which may be a blessing in disguise. It was reported, without confirmation, that grease does reduce the evidence of helminthic infestation of swine.

Hog ranches are not a problem in the city of Los Angeles as there is but one small ranch within the city limits. This ranch could be eliminated as a sanitary nuisance. More information is needed on the relation of the feeding of garbage to hogs and trichinosis. When it is definitely shown that the feeding of garbage to hogs is the sole or principal agent responsible for the dissemination of trichinosis in humans and for the increase in the incidence of trichinae in swine then the city of Los Angeles should take leadership in the control of this disease by refusing to dispose of garbage to hog ranches, even though it does bring in revenue. This saving to the taxpayer comes out of another pocket in paying for illness due to trichinosis directly or indirectly, assuming the incidence of the disease to be as high as reported, as the pork from these hogs is sold in the Los Angeles markets.

Noncombustible Rubbish

Noncombustible rubbish is collected either by city forces or by contractors. There is no charge to the householder for this service. Collection is every other week except in the central business district where it is collected weekly. More frequent or emergency collections must be paid for by the householder. Metal, watertight cans, with handles and tight covers, are required for ashes. The capacity of these cans must be between 3 and 16 gallons. Wood or metal containers, tight enough to hold contents and with capacities between 5 and 30 gallons may be used for rubbish.

Noncombustible rubbish may be deposited in any low place, provided that a permit to do so is secured both from the owner and from the board of public works. Exceptions to this regulation are the Los Angeles River and its bed, and streets. Local dumps are used by contractors for the disposition of their collections. The city, however, hauls its rubbish to a contractor, the Los Angeles By-Products Co., which receives the loads at either its plant at 25th and Alameda Streets, or at 2027 Stoner Street, the transfer yard in West Los Angeles. At the close of the fiscal year 1937-38 the city was receiving 30 cents per load or about \$750 per month for noncombustible rubbish. Salvage materials are sold but no information was secured as to the disposition of nonsalvagable materials. A new contract for 10 years,

starting in 1941, will provide for disposition of these wastes for some time.

Private Contractors

Contractors collect refuse from the outlying harbor, Venice and San Fernando Valley areas, comprising about 57.3 per cent of the city area but serving approximately 10 per cent of the population. It was not determined what the contractors did with the garbage and noncombustible rubbish. It is probable that the garbage is sold to small hog ranches and the rest of the material dumped and salvaged. One dump in the San Fernando Valley, south of the Hanson flood-control dam, was visited. Garbage was dumped into a hopper at bank level of the dry stream bed and was discharged to trucks or wagons beneath, which used the stream bed as a road. The structure was of wood, leakage of liquid was into the sands, odors were strong and flies prevalent. Rubbish was sorted, cans going to the Los Angeles By-Products Co., bottles to second-hand bottle purveyors, other materials salvaged and sold, and the rest dumped and burned if combustible. At the insistence of the health department a water-closet was installed for the use of dump workers and scavengers. At the time of the inspection it had apparently been salvaged and sold. Incidentally this dump has been permitted over the protests of the health department. No nuisance is created because it is too far away to create a complaint. It is unsightly but public health hazards from it are slight. Scavengers should not be permitted.

The San Fernando Valley dump is not to be construed as an indication that other dumps are similar in operation.

Dead Animals

The burial of dead animals within the city is limited by ordinance to those sections of the city known as the San Fernando, West Coast and West Gate additions, or established animal cemeteries. The conveyance of carcasses, except in closed conveyances, through the city is prohibited. The board of public works is charged with the duties of dead animal pickup and disposition. Under a three-year contract expiring October 31, 1940, all dead animals are disposed to the Peterson Manufacturing Co. at 2643 E. 25th St. The city neither pays nor receives payment for this disposal. The company renders the carcasses, producing low-grade grease and tankage, sold for fertilizer.

Combustible Rubbish

Combustible rubbish is collected by private concerns, operating under permit, on a fee basis paid by those receiving the service. Market refuse is usually included in with combustible rubbish. The city controls the disposition of those materials by requiring them to be conveyed either to the 26th St. incinerator or to certain designated dumps or places of disposal. A charge of \$1 per ton of rubbish is made by the city for the privilege of disposing in the incinerator. Receipts for the fiscal year 1937-38 totaled \$62,855.90, receiving approximately 60 per cent of the costs of operation. Not all market refuse finds its way to this incinerator as much of it goes to hog ranches.

The incinerator was built in 1927 at a cost of \$420,000. Built on the edge of an old sand and gravel pit (in the city of Vernon)

it comprises eight circular Nye furnaces, four combustion chambers and four stacks. It has a rated capacity of 400 tons per 24 hours, but this capacity has not been reached. About 210 tons per day, mainly in 12 hours between 6 a.m. and 6 p.m., are burned on the average. The maximum recorded is 349 tons per 24 hours. The incinerator is operated 24 hours a day, six days a week, with important holidays excepted. No attempt is made to utilize heat or ashes, the latter being used to fill the old gravel pit.

Trucks dump rubbish on the floor and bulldozers then push it into the charging holes. Much hand work is required and used. No safety devices are provided. The incinerator was in a state indicating considerable need of repair at the time of inspection. Dump cars take out ashes beneath the charging floor and carry them, often burning, to the dump outside. Tests have been made by the city in the past of other types of incinerators with the view toward eventual replacement of this incinerator.

A municipal dump is operated by the city on Washington Boulevard. Here the city street sweepings and private refuse are received. Formerly any material was received and a charge of 25 cents per load was made. Now the fees are \$1 per load except for material for roadway fill for which a charge of 25 cents per load is made. There has followed a decrease in quantity but an increase in fees. The dump operates at a profit. Interesting features about this dump are that fill is required for this old gravel pit as it is desired to extend Washington Boulevard over it. Here is a municipal improvement desired and planned and yet the city charges for material needed to accomplish it. Earth and other roadway materials are reserved for use in depositing between the proposed roadway lines and side slopes. Another interesting item is that the dump surface is kept clean and level by a group of non-employees who work for the privilege of scavenging. The dump was used for some garbage disposal during the storm of March 1 and 2, 1938. Fill and cover kept the dump controlled.

Lot Cleaning

An examination of the Municipal Code did not reveal the authority or extent of the city in the cleaning of vacant lots. Yet the cleaning of lots is a function of the board of public works exercised through the office of the city engineer. The only mention of this activity is in the following table extracted from the annual report of the board of public works for 1937-38:

Lots checked in all districts.....	101,369
Lots included in six weed ordinances.....	101,369
Lots posted with required legal notices.....	98,330
Lots cleaned by city forces.....	35,218
Average cost per lot for cleaning.....	\$3.14
Per cent cleaned of lots posted.....	37
Total charges submitted to tax collector.....	\$110,453.70

The health department reports that this cleaning is of weeds and brush only and that the removal of rubbish or other debris must be secured by a notice of the health department to the owner. This involves title searches and this work has been and is being done by

one inspector when not engaged in his regular duties of collecting water samples.

Ordinance No. 42,184 (new series), appearing June 30, 1921, and apparently not included in the municipal code, provides for the removal from any lot of "grass, weeds, dead trees, rubbish or other refuse or waste material which is or may become a menace to life or health, and providing for the assessment and collection of lot cleaning taxes." Section 2 of the ordinance states that it shall be the duty of the board of public works to remove vegetation *or other waste material* from such lots after receiving notice from the fire department. This ordinance (in common with others of Los Angeles) utilizes a danger to health as a reason therefor, but fails to mention the health department in the ordinance or give it any authority relating thereto. The health department must secure cleaning of lots, specifically detailed to the board of public works for cleaning of *all* debris or waste material, by defining the accumulation as a nuisance and ordering its abatement. Actually the health hazards are slight or entirely absent and the health department should be relieved of any responsibility in connection therewith.

APPENDIX "C"

SEWERAGE AND SEWAGE DISPOSAL

The sewer systems and the disposal of sewage of the city of Los Angeles come entirely under the jurisdiction of the board of public works, office of the city engineer. The sewer design division, in the design division and under the direction of H. G. Smith, has the duties of sewer plans; "Y" record maps; treatment and pumping plants; substructures; sewer permits and operation of new treatment plants. The sewer maintenance division in the disposal of wastes division and under the direction of F. A. Batty has the duties of inspection, cleaning and repairing of sewers, flushing structures, storm drains, catch basins, culverts and open drainage channels; operation of Hyperion screening plant and pumping plants; elimination of explosive gases and storm water; control of industrial wastes in sanitary sewers.

At the end of the fiscal year 1937-38 there were included in the city sewer system 2,756 miles of sewers and 238,485 house connections. These figures may have been increased to approximately 2,800 miles of sewer and 240,000 connections. Approximately 70 per cent of the population is served by sewers, the balance of the city being served by cesspools and septic tanks. As city ordinances require the installation of a minimum of a flush toilet and sink in every dwelling or building used for living purposes, there are few privies in the city, it being estimated that there are less than 1,000. (The sewer system at the close of 1937-38 included 6,425 working flush tanks, 940 working flushing manholes, and over 55,000 manholes.) There are 16 sewage pumping plants. All sewage, except from the harbor area, is received into a single outfall line, which, from its farthest point in San Fernando Valley to the outlet at Hyperion, is 50 miles in length. At one point or another this outfall sewer receives sewage from Burbank, Glendale, Vernon, Culver City, Beverly and Santa Monica. Sewage from Redondo, Hermosa, Manhattan and El Segundo is pumped to the screening plant at Hyperion. Some county areas, including the thickly-populated West Hollywood section, also discharge into the system. The harbor area, including Wilmington and San Pedro, discharges through a separate system terminating in a separate sewage treatment plant on Terminal Island in the harbor area.

Under contract, the Los Angeles County Sanitation District serves some of the city areas. Generally the county takes all sewage south of Manchester Avenue except that served by the Terminal Island plant, while the city takes all sewage north of Manchester Avenue. For this reason it is difficult to determine the exact population served by sewers within the city, but it probably does not exceed 75 per cent of the total.

Los Angeles city sewage is carried to the ocean at Hyperion just north of El Segundo. This site has been used since 1894 when the first outfall sewer was constructed. This sewer was replaced in 1906

with the Central Outfall, portions of which are still in use. In 1923 the North Outfall replaced the Central Outfall. (This last outfall is of reinforced concrete lined with vitrified brick. The line is semi-elliptical in shape, $10\frac{1}{2}$ ft. x $12\frac{1}{2}$ ft. and has a capacity of 425 c.f.s.) During the fiscal year 1937-38 there was discharged at Hyperion an average daily flow of 131 million gallons with the highest day's flow of 230 million gallons, and an average peak flow of 281 c.f.s. with a maximum peak flow of 500 c.f.s. (estimated). Ground water flow into the sanitary system is limited by city specifications to 0.6 gal. per minute per inch diameter per 1000 lineal feet of sewer.

The sewage is treated at Hyperion by passing through a coarse revolving rack and screen which removes large floating detritus and then passing through a battery of 10 Dorr fine screens. The capacity of each of these screens is 35 c.f.s. and as 2 of the 10 are held in reserve for repairs or emergencies, it will be noted that the plant capacity is reached at average peak loads. The effluent is discharged through an outfall line approximately 5000' to sea. Slick patches indicate the end of the sewer and also leaks from various joints. Little nuisance can be noted along the immediate shore, but the water is polluted for a considerable distance above and below the outfall. The city attempts to forbid both bathing and fishing in the vicinity of the outfall but is not successful in that guards are not on duty. An emergency by-pass is provided in front of the bar screen to permit direct discharge to sea during emergencies.

Screenings are discharged by ejectors to a vacuum filter which returns the liquid to the incoming sewage and the screenings to an endless belt. Here the city's jurisdiction ends. The belt discharges the screenings to a rotary kiln, belonging to a contractor, which dries the screenings and delivers them to a hopper. They are then carried away to a contracting ranch for fertilizer. Screenings were formerly buried in the sand dunes back of the plant but the practice was discontinued when the dunes were excavated to make a site for the proposed new treatment plant. Incidentally the screenings dried out, but none appeared to have decomposed. The temperature in the drier is not known, but it would appear as though both the temperature and period of drying were sufficient to preclude any danger of infection following the use of the material for fertilizer.

The screening plant is admittedly inefficient in so far as sewage treatment is concerned. It is estimated that but 3 to 5 per cent of the suspended solids are removed. Operation is not automatic and night flows average about one-third the peak flows. The construction of the main sewer line and some connecting sewers entailed the use of inverted siphons. Gas collecting in the sewer lines caused not only explosive hazards but also considerable and even excessive deterioration of the structure. Removal of gases is now accomplished by drawing out the gas with high-velocity blowers and discharging it through stacks, apparently without odor nuisance as there have been no complaints. Other minor items relating to sewage collection include that, to date, garbage in sewage is of minor importance as information in the City Engineer's office is that there are not more than 100 individual garbage grinders in the city. Industrial wastes are principally liquid and solid wastes from restaurants and oil and gasoline from garages and filling

stations. Storm drains may be used for the collection of sewage only in extreme emergencies.

The Terminal Island sewage treatment plant may be generally classed as a separate sludge digestion plant. It provides clarification, sedimentation, sludge digestion and sludge drying on sand beds. The plant is designed for a flow of 15 c.f.s. and is operating on a flow of 3 to 5 c.f.s. Chlorine or chloramine is used intermittently for odor control only. The gas from the sludge digester is collected and burned. The heat can be used to heat the digester up to 92° F. although temperatures are more frequently maintained around 85° F. The sludge beds have no drains, waste liquid draining directly into the sand fill. Sludge is carried away for use as fertilizer. Overflows and by-passes permit direct discharge of the sewage into the harbor, about 1000' out from the island. There are no nuisances or complaints. An inspection of the plant disclosed no odors at the time and the plant itself was operating very satisfactorily.

The county sewage is collected at a treatment plant in the county near Harbor City. No mention is made of the treatment, other than separate sludge digestion with gas collection is now used in place of the activated sludge process formerly used. The reason therefore is that the county is starting an extensive program of remodeling, reconstruction and overhauling of the plant. Gas from the digestors is used for all power and light demands at the plant. The effluent is discharged through a long outfall line crossing the San Pedro Hills and discharging in the ocean west of San Pedro.

The relations between the health department and the city engineer's office are, as mentioned before, on a very sound and rational basis. The engineering department tries to carry out health department requests. Orders by the health department to connect to the sewer are referred to the engineering department for permit. The health department may promote sewer extensions but the engineering department designs and constructs them. The disposal of the sewage has been a joint concern because of the potential hazards of bathing in the polluted waters adjacent to the Hyperion outfall, but beyond posting signs, no other action is taken. Studies are now progressing leading to the design and eventual construction of a treatment plant best suited to the needs of Los Angeles. This research work is being done by the division of sewer design at Hyperion with the construction of small scale units utilizing Los Angeles sewage. The health department was formerly concerned over the burial of screenings although the hazard to public health was rather remote. The present method of disposal appears to be reasonably safe, as long as the drier is used before the screenings are loaded and carried away. The sanitary engineer of the health department has been the principal contact man with the engineering department and appears to be well-received by them. The reclaiming of sewage for irrigation must have joint approval.

APPENDIX "D"

MAJOR DISASTER EMERGENCY COUNCIL

There has been formed in the city of Los Angeles a major disaster emergency council to cope with problems which arise during and following disasters. The city health department is represented on this council. No mention has been made of the calls on the health department for emergency duty. The flood of March, 1938, strikes in San Pedro Harbor, earlier earthquakes and such emergencies have found the health department on the ground and doing its share, and often more, of the job at hand. Labor and employers both appear to have confidence in the personnel of the department and necessary measures to protect the public health have been permitted without restraint.

No detailed discussion is made regarding this organization as there was no opportunity during the survey to confer with the director of coordination of the council. It is understood that the council functioned ably during the flood of March, 1938.

The following sections have been taken verbatim from the Municipal Code, 1936, covering the organization and duties of the council:

CHAPTER 5—MUNICIPAL CODE. PUBLIC SAFETY AND PROTECTION Article 1—Emergency Disaster Council

Section 51.01. Emergency Council—Personnel of

The major disaster emergency council which has been heretofore created by Ordinance 73,309, approved December 4, 1933, shall consist of the mayor, a representative of the Los Angeles Chamber of Commerce, a representative of the Los Angeles chapter, American Red Cross, and all the officers and members of each of the units and their subcommittees mentioned in section 51.08.

Section 51.02. Mayor—Chairman of Council

The mayor shall be chairman of said emergency council and should he be absent from the city or disqualified or unable to act for any reason, the powers and duties imposed upon the mayor by the provisions hereof shall then be vested in the president of the city council.

Section 51.03. Council—Rules—Compensation

The emergency council may make such rules and regulations as they may deem necessary for the purpose of putting the plan contemplated hereby into full force and effect. No person shall be paid any compensation for any service rendered, except as expressly provided for in this article.

Section 51.04. Executive Committee.

Those persons acting as chairman of the units enumerated in section 51.08 (a) to (o) inclusive, excluding (j), the mayor, a representative of the Chamber of Commerce, and a representative of the Amer-

ican Red Cross, shall be known as "Emergency Disaster Executive Committee."

Section 51.05. Mayor—Power to Obligate City

The mayor shall have the power, in the event of such emergency, to obligate the city for the payment for any and all supplies, equipment, materials, food or other necessities of life that may be necessary for the purpose of alleviating suffering to the citizens of this city and for the purpose of protecting the citizens from the hardships anticipated in case such condition arises.

Section 51.06. Mayor—Declarations of Emergency

The mayor shall have the power, in his discretion, to declare when an emergency disaster exists, and it shall be the duty of the city council to conform and ratify the acts of the mayor, acting in his capacity as chairman of the emergency council, during the condition of emergency.

Upon the declaration of the mayor that an emergency exists, he shall forthwith establish communication between himself and the executive committee of the emergency council.

In the event of the declaration of any emergency, it shall be the duty of the mayor to notify all members of the emergency council of said declaration and all of such members shall forthwith assemble at Westlake Park.

Section 51.07. Duties of Emergency Council

It shall be the duty of the emergency council to undertake to coordinate all resources of the city and the various citizens of the city, together with the resources of various corporations, business houses and associations doing business in the city and, by means of mutual cooperation and effort, create a plan which would permit an effective and efficient method of utilizing all available resources and materials for the relief and general welfare of the people of this city in the event some major catastrophe, disaster, calamity or cataclysm overtakes them. In formulating such plan said council shall act in accordance with all laws to which the city is subject and each and all members of said council shall diligently undertake to acquaint himself and become familiar with the responsibilities imposed upon him in the event of such emergency.

Section 51.08. Division Units—Duties of Each

The members of the executive committee shall be in charge of and direct the following divisions or units of the plan contemplated:

(a) Intelligence division: The intelligence division shall have charge of and direct:

- (1) The duty of the organization.
- (2) Coordination of all divisions and units or groups referred to in this article.
- (3) From time to time to make tests to determine the effectiveness of the plan created.
- (4) To have charge of the publicity and dissemination of information to the public concerning the proposed functions of the emergency council, in the event of a major disaster, and during

the time of such disaster, if any may exist, to gather such information as may be necessary to permit the effective functioning of the plan contemplated by this article.

- (5) (a) The chairman of the intelligence division shall be known as the director of coordination. It shall be his duty to maintain permanent headquarters of the major disaster emergency council. He shall devote all his time to the emergency council. In addition to the matters enumerated in paragraphs (1), (2), (3) and (4) of this subsection, he shall keep in constant touch with the members, keep reports up to date, drill and instruct the various units, keeping them in touch with all the activities of the emergency council. The chairman of the intelligence division shall receive such compensation for his services as such chairman as shall be fixed by the city council.
- (b) Transportation: The transportation division shall direct and have charge of the operation of all facilities of transportation including railroads, street cars, private automobiles, motor buses, taxicabs, airplanes and pilots, trucks and steamships.
- (c) Communication: The communication division shall arrange for and direct the operation of all systems of communication which may be necessary or useful to insure the efficient functioning of the plan contemplated by this article.
- (d) Personnel: American Legion: The personnel division shall have charge of and direct:
 - (1) The mobilization and stationing of all groups of ex-service men.
 - (2) The distribution of such personnel as may be available to other divisions for assisting such other divisions.
- (e) Law and Order: The law and order division shall be under and subject to the control of the Los Angeles Police Department and shall have charge of and direct the enforcement of law and order, and shall assign the stations and direct the duties of the following:
 - (1) Department of police.
 - (2) Sheriff of Los Angeles County.
 - (3) Such members of the United States Army, Navy, Marine Corps, National Guard, Reserve Officers, R.O.T.C. and others as may be available.
 - (4) The chairman of the law and order division shall organize for the assistance and cooperation of the police department all outside groups as set forth in paragraph (3) of this subsection.
- (f) Fire: The fire division shall be under and subject to the control of the Los Angeles Fire Department and said department shall have the authority to do any and all acts vested in said department under the provisions of

Article X of the charter, and in addition thereto, in case of necessity:

- (1) The use and control of all explosives;
 - (2) The demolition of buildings or structures;
 - (3) The use and control of all oils and chemicals;
 - (4) Outside auxiliary fire fighting equipment;
 - (5) Direction of public utilities, such as gas, electricity, ammonia, etc.
- (g) Water: The water division shall have charge of and direct the maintenance of water supply, repairs to water system, control of reservoirs, and shall perform such duties as may be necessary to insure an adequate and uncontaminated supply of water.
- (h) Streets: The street division shall have charge of and direct the clearing of debris from the streets and the keeping of such streets open for the purpose of permitting transportation thereover and the maintenance of sewer facilities.
- (i) Medical, health and sanitation: The medical, health and sanitation division shall be under and subject to the control of the health department, and shall have charge of and direct:
- (1) Hospitalization;
 - (2) Vaccination;
 - (3) Quarantine;
 - (4) Food inspection;
 - (5) Sanitation;
 - (6) Physicians, surgeons and nurses;
 - (7) Medical and surgical supplies;
 - (8) The chairman of the medical, health and sanitation division shall organize for the assistance and cooperation of the health department, all outside physicians and surgeons, nurses and hospitals.
- (j) American Red Cross: The American Red Cross shall have charge of and direct all American Red Cross activities as hereinafter set forth in subsections (k) and (o) inclusive.
- (k) Necessities of Life: The necessities of life division shall have charge of and direct, allocate and distribute all goods and wares commonly known and referred to as necessities of life, including food supplies, clothing, bedding, cooking and service equipment.
- (l) Shelter: The shelter division shall provide for housing in temporary buildings or otherwise, small tents and other materials available for use for housing purposes, fencing, fuel supplies, sanitation drainage and heating equipment.
- (m) Rescue: The rescue division shall include all first aid, searching for disabled persons and dead bodies, transportation of sick or injured to hospitals, and life guards.
- (n) Rehabilitation: The rehabilitation division shall have charge of rehabilitation as provided for by the American Red Cross manual.

- (o) Finance: The finance division shall have charge of and direct the collection and disbursement of all money contributions made available for use in furtherance of the plan contemplated hereby.

Nothing in this article contained shall be construed as limiting or modifying in any way:

- (1) The disaster relief responsibility of the American National Red Cross as imposed by the charter given to it by the Congress of the United States in 1905;
- (2) The policies and procedures of the American National Red Cross in disaster relief as they have been, or shall be promulgated by the central committee or responsible officers of that organization.

Section 51.09. Division Chairmen—Appointment

Each and all divisions hereinabove referred to shall be under the control and direction of a chairman. In the absence of express declaration to the contrary by a majority of the members of the executive committee, he shall do any and all acts imposed upon the division of which he is in charge. The chairman and two alternate chairmen of each such division, shall be appointed by the mayor subject to the approval of the city council, and shall hold office for life during good behavior. Should any of them resign or become disqualified to act, the vacancy created in such chairmanship or alternate chairmanship, shall be filled by the majority of the members of the executive committee.

Section 51.10. Identification Badges—Issuance of

The emergency council shall authorize a badge or pass card as a means of identification. Said badge or card will be recognized by all police, sheriff and state officers, and others, as authority to pass in devastated areas in time of disaster. Said badge or pass card will be numbered and signed by for members receiving same and will be issued only to regular members of the emergency council and only for the duration of their active service. The member receiving a badge or pass card shall deposit with the emergency council an amount of money covering the cost of said badge or pass card, said money to be refunded to the member on return of the badge or pass card.

Section 51.11. Possession of Badges

No person other than a member of said emergency council shall wear or carry about his person any such badge or pass card referred to in section 51.10 hereof, or wear or carry about his person any badge or pass card of a design or pattern that may be taken for or confounded with the badge or pass card heretofore or hereafter adopted by the emergency council.

APPENDIX "E"

CALIFORNIA LOCAL HEALTH DISTRICT ACT

(Approved May 21, 1917; Statutes 1917, page 791)

May be or-
ganized
when.

1. A local health district may be organized, incorporated and managed as herein provided, and may exercise the powers herein granted or necessarily implied. Such a district may include incorporated or unincorporated territory or both, in any one or more counties; provided, that the territory of the district consists of contiguous parcels and that the territory of no municipal corporation is divided.

Health Districts, How Formed

Petition of
voters.

2. Whenever the formation of a local health district is desired, a petition, which may consist of any number of instruments, may be presented at a regular meeting of the board of supervisors of the county in which the proposed district or portion thereof is situated, signed by registered voters of each unit of the district equal in number to at least 10 per cent of the number of votes cast in each unit respectively for the office of governor at the last preceding general election at which a governor was elected. For the purposes of this act all unincorporated territory in a proposed district and in one and the same county shall be regarded as an entirety, and as a unit, and each incorporated city or town in a district shall likewise be regarded as a unit. If an incorporated city or town is included, the common council, board of trustees or other governing body thereof shall, by resolution duly authenticated, request the inclusion of the city or town in the proposed district. The petition shall set forth and describe the proposed boundaries of the district and shall pray that the same be created under the provisions of this act. Prior to the time at which the petition is to be presented, the text thereof shall be posted for thirty successive days in three public places in each incorporated city or town and unincorporated district; and a reference to said text shall be published along with the notice herein mentioned in this paragraph and the following paragraph for four successive publications in a daily, semiweekly or weekly newspaper of general circulation printed and published in each incorporated city or town included therein, and if there is no such newspaper published in the city or town, then the text of the petition shall be posted for the same length of time in three public places as herein specified. The text of the petition so posted and published by reference as herein mentioned shall have

Context.

Publica-
tion.

annexed thereto a notice stating the time and place of the meeting of the board of supervisors at which the same will be presented. When the petition is composed of more than one instrument, one copy only thereof need be published or posted as herein specified in the posting and publication of the text and notice. No more than five of the names attached to the petition need appear in such publication or posting, but the number of signers must be stated. At least one month prior to the time at which the petition is to be presented, a copy of the text, notice and petition must be filed with the State Board of Health and board of supervisors of the county or counties.

Time and
place of
presenta-
tion.

With such publication there shall also be published, and if posted, there shall also be posted, a notice of the time of the meeting of the board when such petition will be presented and that all persons interested therein may then appear and be heard. At such time the board of supervisors shall hear the petition and those appearing thereon, and also all protests and objections to the same, and may adjourn such hearing from time to time, not exceeding two months in all. No defect in the contents of the petition or in the title to or form of the notice or signatures, or lack of signatures thereto, shall vitiate any proceedings thereon, provided such petition or petitions have a sufficient number of qualified signatures attached thereto. On the final hearing the board shall make such changes in the proposed boundaries as may be deemed advisable and shall define and establish such boundaries; provided, that if the board deems it proper to include therein any territory not included within the proposed boundaries, they shall first give notice of their intention so to do, in the same manner as required for notice of the initial hearing.

Hearing.

Boundaries.

Procedure Before Board of Supervisors

3. Upon the hearing of the petition the board of supervisors shall determine whether it complies with the provisions of this act and whether the public necessity or the welfare of the inhabitants of the proposed territory requires the formation of the district, and for that purpose must hear all competent and relevant testimony offered in support of or in opposition thereto. The findings of the board shall be final and conclusive against all persons except the State of California upon suit commenced by the attorney general. If it appears to the board that the petition complies with the provisions of this act and that the public necessity or the welfare of the inhabitants requires the formation of the district, it shall by an order entered on its minutes so declare its findings, and shall further declare and order that the territory within the boundaries so fixed and determined be established as a local health district, under an appropriate name selected by the board, which name shall include the words "local health district." The county clerk shall immediately file a certified

Testimony.

Order estab-
lishing
district.

Certificate of
incorporation

copy of the order with the secretary of state and with the county clerk of each county in which the district or any portion thereof is situated. Within ten days of such filing the secretary of state shall issue and deliver to the county clerk a certificate reciting that the local health district (naming it) has been duly incorporated under the laws of the State of California. The county clerk shall deliver this certificate to the board of trustees of the district at the first meeting of the board. From and after the date of the certificate of the secretary of state, the district named therein shall be deemed incorporated as a local health district with all the rights, privileges and powers set forth in this act and necessarily incident thereto.

District Health Officers, How Chosen, and Term of Office

Board of
trustees.

Number.

Vacancy, how
filled.

Term of
office.

4. Within thirty days of the issuance by the secretary of state of the certificate of incorporation of the district, a board of trustees for the district shall be appointed. The board shall consist of one trustee to be appointed from each unit in the case of unincorporated territory by the board of supervisors, and in the case of an incorporated city or town, by the local governing body thereof; provided, that if the board of trustees thereby created consists of less than five members, then the board of supervisors shall appoint from the district at large enough additional members to make a board of five trustees, if the unit of the district at large is within one county; and if there are several units of the district at large in more than one county, then by the board of supervisors of the county where such unit is situated; and by the boards of supervisors jointly if the district at large constitutes units in several counties and one additional member is to be appointed. A vacancy shall be filled by the appointing power for the unexpired term. The governing board of the district shall be called "the board of trustees of ----- local health district" (inserting the name of the particular district). The trustees shall hold office for the term of two years from and after the second day of the calendar year next succeeding their appointment; provided, however, that the first board of trustees appointed in a district shall at their first meeting so classify themselves by lot that one-half of their number, if the total membership is an even number, and if uneven, then that a bare majority of their number, shall go out of office at the expiration of one year, and the remainder at the expiration of two years from the second day of the calendar year next succeeding their appointment.

Organization of Board

Officers.

5. The members of the board of trustees shall meet on the first Monday subsequent to thirty days after the issuance of the certificate of incorporation by the secretary of state, and shall organize by the election of one of their members as

president and one as secretary. The members of the board shall serve without compensation except that each shall be allowed his actual necessary traveling and incidental expenses incurred in attending meetings of the board. The board shall provide for the time and place of holding its regular meetings and the manner of calling the same, and shall establish rules for its proceedings and may adopt such rules and regulations not inconsistent with law as may be necessary for the exercise of the powers conferred and the performance of the duties imposed upon the board. Special meetings may be called by three trustees and notice of the holding thereof shall be mailed to each member at least forty-eight hours before the meeting. All of its sessions, whether regular or special, shall be open to the public, and a majority of the members of the board shall constitute a quorum for the transaction of business.

Powers Bestowed on Health Districts

6. Each local health district shall have and exercise the following powers:

- (1) To have and use a corporate seal and alter it at pleasure;
- (2) To sue and be sued in all courts and places and in all actions and proceedings whatever;
- (3) To purchase, receive, have, take, hold, lease, use and enjoy property of every kind and description, both within and without the limits of the district, and to control, dispose of, convey and encumber the same and create a leasehold interest in same for the benefit of the district;
- (4) To acquire, construct, maintain and operate all works and equipment necessary for the inspection of water, milk, meat and other foods, the extermination of rodents and the disposal of garbage and waste;
- (5) To employ public health nurses and health visitors and to cooperate with educational authorities in health inspection in public or private schools in the district;
- (6) To exercise the right of eminent domain for the purpose of acquiring real or personal property of every kind necessary to the exercise of any of the powers of the district;
- (7) To enforce all statutes relating to the public health and vital statistics, and all orders, quarantine regulations and rules prescribed by the State Board of Health;
- (8) To enforce such local orders and ordinances pertaining to health and sanitary matters within the district as may be authorized by the appropriate local authorities;
- (9) To unite with any other local health district or districts in the exercise of any of the powers herein

granted to and vested in each district, the cost thereof to be paid by each district in such proportion as may be agreed upon by the respective district boards of trustees;

- (10) To exercise all other needful powers for the preservation of the health of the inhabitants of the district, whether such powers are herein expressly enumerated or not;
- (11) This grant of power is to be liberally construed for the purpose of securing the well-being of the inhabitants of the district.

District Health Officers, Qualifications of

Appointment of.	7. The board shall appoint and fix the compensation of a district health officer, who may be removed by the board only by a two-thirds vote of the members thereof. He shall be the holder of a degree in medicine, sanitary engineering or public health and shall have had at least one year's experience in public health work. He shall devote his entire time to the duties of his office and is expressly prohibited from engaging in any other occupation or business. The board shall provide suitable supplies, equipment and office facilities for the health officer and, upon the recommendation of the health officer, shall fix the compensation and define the powers and duties of such deputies and assistants to the health officer as the board may deem necessary to carry out the provisions of this act. If a meat inspector is employed, he shall be a graduate veterinarian legally qualified to practice veterinary medicine in the State of California. The health officer, his deputies and assistants, shall receive their actual necessary expenses incurred in the performance of their duties. In enforcing state statutes, orders, regulations and rules and local orders and ordinances the health officer shall have such powers as are or may be hereafter conferred by general law upon county or municipal health officers. All district officers, deputies and assistants other than the health officer and the members of the board of trustees shall be appointed and may be removed by the board of trustees on the recommendation of the health officer, subject to such rules and regulations as the board of trustees, in its discretion, may adopt for the appointment and employment of deputies and assistants, based on merit, efficiency, character and industry.
Qualifications.	
Devote entire time.	
Supplies.	
Expense.	
Powers.	
Appointment of district officers, etc.	

Health Officer Administrative Head

Exercise powers.	8. The health officer shall be recognized as the administrative head of the district and, except as herein otherwise prescribed, shall exercise the powers granted to and vested in the district; provided, that he may not purchase property or incur expenditures without the approval or ratification of the board of trustees.
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Supervisors Shall Levy Tax to Maintain District

9. Annually, at least fifteen days before the first day of the month in which county taxes are levied, the board of trustees of each local health district shall furnish to the board of supervisors of the county in which the district or any part thereof is situated an estimate in writing of the amount of money necessary for all purposes required under the provisions of this act during the next ensuing fiscal year. Thereupon it shall be the duty of the board of supervisors to levy a special tax upon all taxable property of the county lying within the district sufficient in amount to maintain the district. The tax shall in no case exceed the rate of fifteen cents on each one hundred dollars of the assessed valuation of all taxable property within the district, but it may be in addition to all other taxes allowed by law to be levied upon such property. The tax shall be computed, entered upon the tax rolls and collected in the same manner as county taxes are computed, entered and collected. All moneys so collected shall be paid into the county treasury to the credit of the particular local health district fund and shall be paid out on the order of the district board, signed by the president and secretary thereof. If the district embraces territory lying in more than one county, the amount estimated shall be ratably apportioned among the several counties in the district in proportion to the assessed value of the property in the several counties included within said district as shown upon the last assessment rolls of the said counties, and the estimate apportioned to the several counties shall be rendered to their respective boards of supervisors and the tax shall be levied and collected by the officials of each county upon the property of the district lying therein.

Estimate of
amount
needed.Levy of
tax.Apportioned
among
counties.***Procedure in Annexing Territory***

10. Any territory, incorporated or unincorporated, lying adjacent and contiguous to a local health district, may be added and annexed to such district at any time upon proceedings being had and taken as in this act prescribed: provided, that in such annexation the territory of no municipal corporation may be divided. The board of trustees of such district, upon receiving a written petition therefor containing a description of the new territory sought to be annexed to such district, signed by the owners comprising more than one-half of the assessed value of such territory as shown by the last county assessment roll, must thereupon submit to the electors of the district and also to the electors residing in the territory sought to be annexed, the proposition of whether such proposed territory shall be annexed and added to such district. The proposition to be submitted to the electors at such election, both within said district and within said territory so proposed to be annexed, shall be as follows: "For annexation," or "Against annexation," or words equivalent

Annexation
of ter-
ritory.

Petitions.

Proposition
submitted
to electors.

If major-
ity favor.

thereto. Such election must be called and held, and notice thereof shall be published for at least four weeks prior to such election in a newspaper printed and published in such district, and also in a newspaper printed and published in such territory so proposed to be annexed. The board of trustees shall canvass, separately, the votes cast within said district, and the votes cast within said territory so proposed to be annexed, and if it shall appear from such canvass that a majority of all the ballots cast in such district and a majority of all the ballots cast in such territory so proposed to be annexed are in favor of annexation, the board of trustees shall certify such fact to the Secretary of State describing said property proposed to be annexed and upon receipt of such last-mentioned certificate, the Secretary of State shall thereupon issue his certificate reciting that the territory (describing the same) has been annexed and added to the ----- local health district (naming it), and a copy of such certificate of the Secretary of State shall be transmitted to and filed with the county clerk of each county in which such local health district or any portion thereof is situated. From and after the date of such certificate the territory named therein shall be deemed added and annexed to and shall form a part of said local health district, with all the rights, privileges and powers set forth in this act and necessarily incident thereto. If the property so proposed to be annexed includes a municipal corporation, consent to annexation shall first be obtained from the governing board thereof, and an authentic copy of the resolution or order of such board so consenting to such annexation shall be attached to the petition and be made a part thereof.

Annexation
of municipal
corporation.

Procedure in Dissolving District

Two-thirds
vote nec-
essary.

Election.

Certify
result.

Apportion
property.

11. A district may at any time be dissolved upon the vote of two-thirds of the qualified electors thereof, upon an election called by its board of trustees upon the question of dissolution and the proposition which shall be submitted to the electors at such election shall be as follows: "Shall the district be dissolved?" Such election must be called and held, and notice thereof shall be published for at least four weeks prior to such election in a newspaper printed and published in the district. If two-thirds of the votes at such election shall be in favor of the dissolution of the district, the board of trustees shall certify such fact to the Secretary of State, and upon receipt of such last-mentioned certificate, the Secretary of State shall thereupon issue his certificate reciting that the local health district (naming it) has been dissolved, and a copy of such certificate of the Secretary of State shall be transmitted to and filed with the county clerk of each county in which the district or any portion thereof is situated. From and after the date of such certificate the district named therein shall be deemed disincorporated and the property of the dis-

trict shall be ratably apportioned among the several municipalities included in the district and the county or counties in which the district or any portion thereof is situated, in proportion to the assessed value of the property included within said district as shown upon the last county assessment roll or rolls.

Conditions To Be Complied With in Forming Districts

12. Whenever it appears that the territory of the proposed district is in more than one county, it is to be expressly understood in this act that the phrase "board of supervisors" shall include plural as well as singular and that the same procedure and law as herein set forth for the establishing of such local health district in a county only shall likewise apply to the adjoining county or counties whose territory or portion thereof is included in the proposed local health district, and that no district involving more than one county shall be formed without the concurrent consent of the respective board of supervisors of each of said counties, as well as the consent of the municipalities included therein, and that such district shall be officially incorporated under the laws of the State of California when the respective counties have fully complied with the laws herein specified, and when the Secretary of State has received the respective certified copies of the orders of the counties and delivered to the respective county clerks within the time in this act specified his certificate reciting that the local health district has been duly incorporated under the laws of the State of California.

Definition
of phrase.

Constitutionality. Declaration of Legislature

13. If any section, subsection, sentence, clause or phrase of this act is for any reason held to be unconstitutional, such decision shall not affect the validity of the remaining portions of this act. The Legislature hereby declares that it would have passed this act, and each section, subsection, sentence, clause and phrase thereof, irrespective of the fact that any one or more other sections, subsections, sentences, clauses or phrases be declared unconstitutional.

APPENDIX "F"

QUALIFICATIONS RECOMMENDED BY THE CONFERENCE OF STATE AND TERRITORIAL HEALTH OFFICERS FOR HEALTH OFFICERS AND OTHER PUBLIC HEALTH PERSONNEL

The following provisional and temporary standards are recommended for medical officers, public health engineers, nurses, sanitarians, and sanitary officers as qualifications for public health service:

Health Officers

I. Basic educational requirements shall be—

A. The degree of doctor of medicine from a reputable medical school and eligibility to examination for medical licensure in the state where service is to be rendered.

B. Not less than 1 year of clinical experience gained preferably in a hospital of acceptable standards. Preference shall be given to candidates whose clinical experience includes 3 months' hospital work in pediatrics and a similar period of experience in infectious diseases.

II. Special qualifications:

A. Pending the development of a reserve of personnel having graduate training in public health work the following minimum qualifications shall apply as a standard in the selection of medical officers of health for jurisdictions of less than 50,000:

1. Candidates for appointment shall be not more than 35 years of age when first specializing in public health work. Preference shall be given to candidates having had 1 or more years' experience in the general practice of medicine.

2. Personnel selected shall already have had or shall agree to take before assuming duty not less than 3 months of special training in public health, of which not less than 2 months shall be organized instruction in an approved academic institution and 1 month in field apprenticeship in an approved local health organization.

B. For health officers of jurisdictions having populations of more than 50,000, for staff positions with state health departments, and for positions having the responsibility of supervisory and consultant service the following standard of qualifications shall apply:

1. Not less than 1 year in residence at a recognized university school of public health and the satisfactory completion of a course of study in the fundamental subjects in preventive medicine:

(a) Such knowledge of biostatistics as will give the individual a sound conception of the mass phenomena of disease, familiarity with the meth-

ods of collecting, recording, and studying statistics on vital phenomena, and ability to interpret the results of the analysis of such material.

(b) Some knowledge of general or theoretical epidemiology and training in the collection, recording, analysis, and interpretation of epidemiological information regarding the commoner diseases, including occupational diseases and industrial hazards.

(c) Familiarity with the general historical background of health administration, a general knowledge of the forms and methods of operation of health departments of the national government and of the states and local units, and acquaintance with the standard procedures of health administration.

(d) Sufficient knowledge of public health bacteriology and immunology to permit the performance personally of the simple diagnostic procedures, the interpretation of laboratory reports, and familiarity with the general methods of administration and operation of public health laboratories.

(e) General knowledge of the usual methods of water purification and sewage disposal, sufficient to enable the individual intelligently to advise the local authorities in securing engineering advice and in undertaking new procedures.

(f) Familiarity with the dangers from, and the general methods of securing protection against, diseases transmitted by foods.

(g) Sufficient familiarity with the clinical aspects of the commoner communicable diseases to serve as a basis for developing skill in differential diagnosis and advising as to treatment; complete and accurate knowledge of the possibilities, limitations, and practical methods of immunization against communicable diseases.

(h) Sufficient knowledge of the epidemiology and clinical aspects of tuberculosis to enable the individual to plan and administer methods of prevention.

(i) Sufficient knowledge of the epidemiologic, clinical, and social aspects of venereal disease to enable the individual intelligently to plan and administer preventive procedures.

(j) Familiarity with the principles of nutrition. A knowledge of basic food requirements, not only those that are necessary to life, but those which represent optimum conditions for production of the greater vigor and stamina and sufficient knowledge to recognize actual clinical entities that may be produced by a faulty dietary.

(k) Sufficient familiarity with the clinical aspects of the common occupational diseases to serve as a basis for developing skill in differential diagnosis and advising as to treatment, and accurate knowledge of the possibilities, limitations, and practical methods of control of occupational diseases.

2. Not less than 6 weeks of field experience under proper supervision in a suitable health organization.

III. Exceptions to the foregoing standards for medical officers may be made only when candidates for positions have, through experience and practical training, proved ability to perform successfully the duties of the position for which application is made.

IV. Standards for health officers of jurisdictions having less than 50,000 population shall be progressively advanced as rapidly as training facilities become sufficiently well developed and adequate reserves of trained personnel are established. It is doubtful that the time is near at hand when a year's resident training in a recognized university school of public health may be required of students for positions in the smaller health jurisdictions, but progressive improvement of personnel training may be secured through graduate training subsequent to employment, as well as by increase of personnel. Preference should be given to medical officers meeting the higher standard of qualifications outlined under section II.

Public Health Nurses

I. Staff positions:

1. For the nurse on a staff providing well qualified nurse supervision:

A. At least a high school graduation or its educational equivalent as determined by State Department of Education.

B. Fundamental nursing education; namely, graduation from an accredited school for nurses connected with a general hospital having a daily average of 50 patients or more. The curriculum must include practical experience in caring for men, women, and children, together with theoretical and practical instruction in medical, surgical, obstetrical, and pediatric, and communicable disease nursing. Such experience may be secured in one or more hospitals.

Preference must be given the public health nurse who has had training in communicable diseases (including tuberculosis and venereal diseases); mental diseases and mental hygiene; and such specialties as diseases of the eye, ear, nose, and throat; experience in out-patient clinics. This training may be given in the school, as an affiliation with another school of nursing, or as a post-graduate course.

Two months' field training with some well-organized community health agency shall be prerequisite for employment. For those nurses not meeting the educational and professional requirements of the foregoing outline, occasional exceptions may be made if professional training or experience has developed a wisdom and judgment which is of equal value in the public health nursing field.

C. State Registration.

2. For the nurse working without well-qualified nurse supervision:

A, B, and C as above.

D. In addition it is desirable that she shall have had—

1. At least six weeks' instruction in public health nursing, preferably in one of the recognized public health nursing courses, and one year's experience under adequate supervision; or

2. Two years' experience under adequate supervision; or

3. A public health nursing course which meets accredited standards.

Occasional exceptions may be made for those not meeting this academic and fundamental nursing standard, but such nurses must have proved their ability before being appointed for positions where they work alone and must meet requirement D.

It is of primary importance that every public health nurse have suitable personal qualifications.

II. Supervisors:

It is expected that those appointed to positions of supervisory rank have the equivalent of the educational and professional background described as a standard for the staff nurse under section I, paragraph 7, items A, B, and C.

The following additional qualifications shall be required:

D. At least one year's supervised experience in a well-organized public health nursing agency.

E. A public health nursing course which meets accepted standards.

For those nurses not meeting the educational and professional requirements of this outline, occasional exceptions may be made if professional training or experience has developed a wisdom and judgment which is of equal value in the public health nursing field.

In making promotions and new appointments to supervisory positions, preference must be given to those with certain personal qualifications which, though difficult to measure, are vital to her work, such as special technical skill in the field she supervises, ability to impart information, to win confidence of staff, and to inspire voluntary requests for help; ability to delegate work with a fair balance in responsibilities assigned, and to stimulate initiative on the part of the staff; ability to correlate work with that of other agencies in related health and social fields; breadth of vision covering both the aims of her profession and the work of her organization in relation to a unified community health program, with the initiative and imagination for developing new work.

Public Health Engineers

I. Basic educational requirements shall be:

A. A degree in engineering from a reputable university or technical school and eligibility to the examination as professional engineer in the state where service is to be rendered. In obtaining the degree, courses in sanitary engineering and basic courses in personal hygiene should be included.

B. Not less than one year of experience in some line of sanitary or public health engineering under qualified supervision.

II. Special qualifications for staff position in state or city health departments and for position having responsibility of supervisory and consulting service the following standard or qualification shall apply:

1. Not less than 1 year, and preferably 2 years, in residence at a recognized university or technical school of public health in which the following shall have been the main educational training:

(a) Education in biostatistics sufficient to give the individual a sound conception of the mass phenomena of disease, familiarity with methods of collecting, recording, and studying statistics on vital phenomena, and ability to interpret the results of the analysis of such material.

(b) Knowledge of general or theoretical epidemiology and training in the collection, recording, analysis and interpretation of epidemiological information regarding those diseases toward the prevention and control of which the public health engineer would be expected to contribute.

(c) Studies and field experience leading to a familiarity with the general historical background of health administration, a general knowledge of the forms and methods of operation of health departments of the National Government, and of the states and local units, public health education and publicity, and acquaintance with standard procedures of health administration.

(d) Fundamentals of common law.

(e) Education in sanitary bacteriology, chemistry, and planktology, and instruction in the interpretation of laboratory reports and methods of administration and operation of laboratories in connection with public health work.

(f) Instruction in food technology, with particular reference to production and pasteurization of milk, and familiarity with methods of protection against such diseases as may be transmitted by foods.

(g) Instruction in entomology as it applies to those insects which may be vectors in disease transmission and in methods of insect control.

(h) Instruction in housing, with respect to health.

(i) Instruction in heating, lighting, air conditioning, and ventilation sufficient to give the individual some knowledge of these subjects.

(j) Instruction in industrial sanitation, particularly with reference to hazards the correction of which is largely an engineering problem.

(k) Instruction in the special sanitary problems of rural and recreational areas.

III. Occasional exceptions to the foregoing standards for public health engineers may be made only when the candidates for positions have, through experience and particular training, proved ability to perform successfully the duties of the position for which application is made.

IV. Standards for public health engineers for jurisdictions having less than 50,000 population shall be progressively advanced as rapidly as training facilities become sufficiently well developed and adequate reserves of trained personnel are established.

It is doubtful that the time is near at hand when a year or more resident training in a recognized school of public health may be required of students for positions in the smaller health jurisdictions, but progressive improvement of personnel training may be secured through graduate training subsequent to employment, as well as by increase of personnel. Preference should be given to public health engineers meeting the highest standard of qualifications outlined under section II.

Sanitarians and Sanitary Officers

I. Sanitarians having consultant and (or) special service responsibilities:

1. The designation shall be "Sanitarian" with such prefix as the training in a particular branch of public health work would indicate.

2. The educational requirements shall be a bachelor's degree from a recognized educational institution (of learning), followed by at least 1 year's course, or its equivalent, in certain subjects necessary for one entering the public health field.

The educational requirements shall include as basic training common to all classes of sanitarians:

(a) Education in biostatistics and general epidemiology, particularly in methods of collecting, recording, and interpreting information regarding diseases toward the prevention and control of which the sanitarian is expected to contribute.

(b) Sufficient instruction in public health administration to provide a general knowledge of the forms and methods of health department practice.

To such basic training there shall be added specialized training in one or more of the following classes of sanitation service:

(a) General sanitation, including nuisances, water supply, sewage disposal, rural and recreational sanitation, mosquito control, and rat control; or

(b) Sanitary control of milk and foods, including methods of protection against such diseases as may be transmitted by foods, and laboratory procedures; or

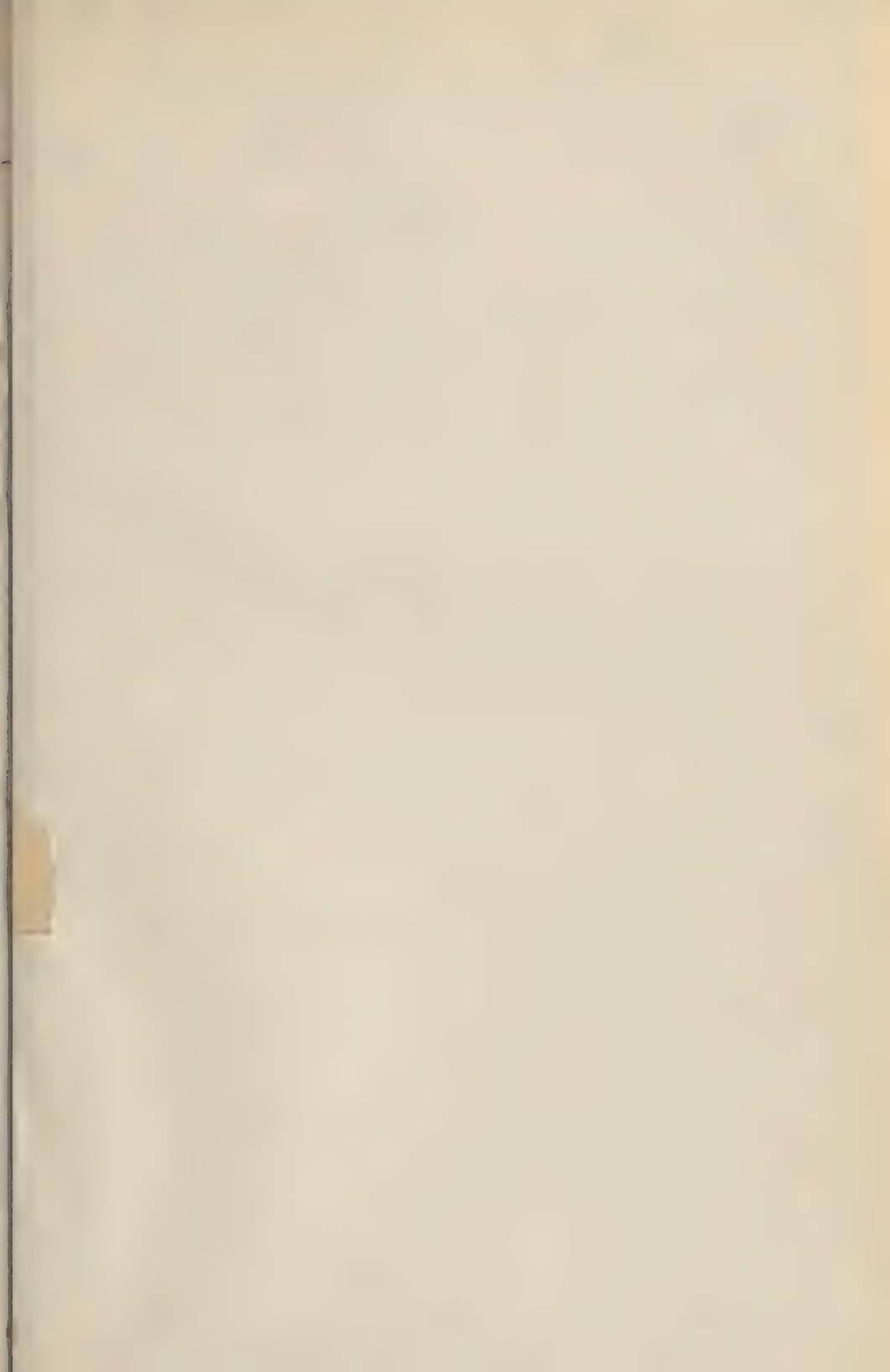
(c) Control of environment, to include housing and plumbing with respect to health, heating, lighting, air conditioning, and ventilation sufficient to give some knowledge of the subjects, and courses in industrial sanitation.

II. Sanitary officers serving on the staff of local health organizations where good supervision is available through medical or engineering officers:

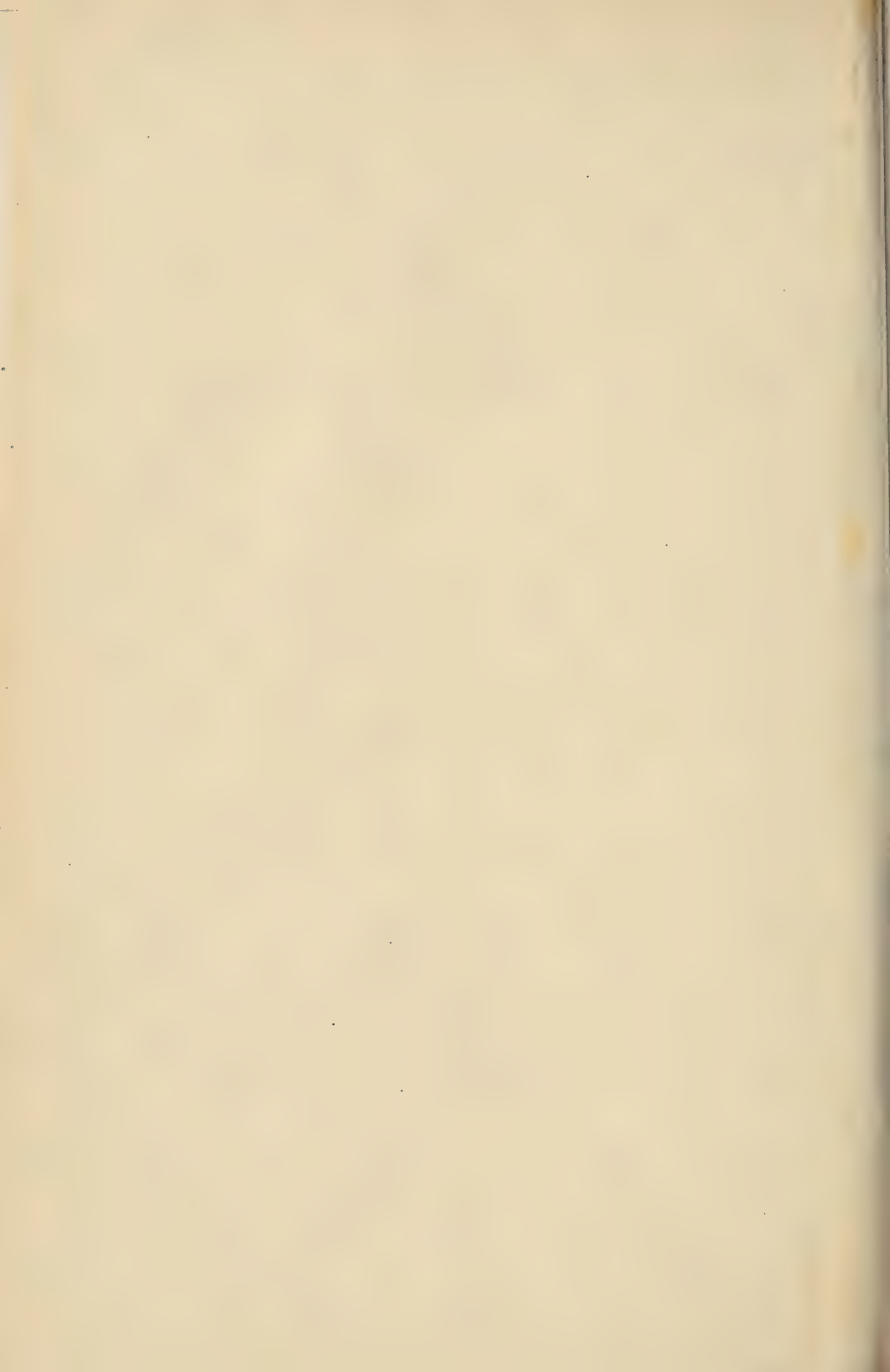
1. The designation shall be "Sanitary Officer."
2. Educational requirements shall be not less than graduation from high school.
3. At least 1 year of experience in some line of work that has brought the individual in contact with the general public shall be required.
4. Not less than 12 weeks of special training in sanitation work through organized courses of instruction which meet recognized standards shall be required.
5. Individuals not having had organized instruction which meets recognized standards, or experience in health and sanitation work by means of which satisfactory ability has been demonstrated, shall not have exceeded 35 years of age at the time of first employment.

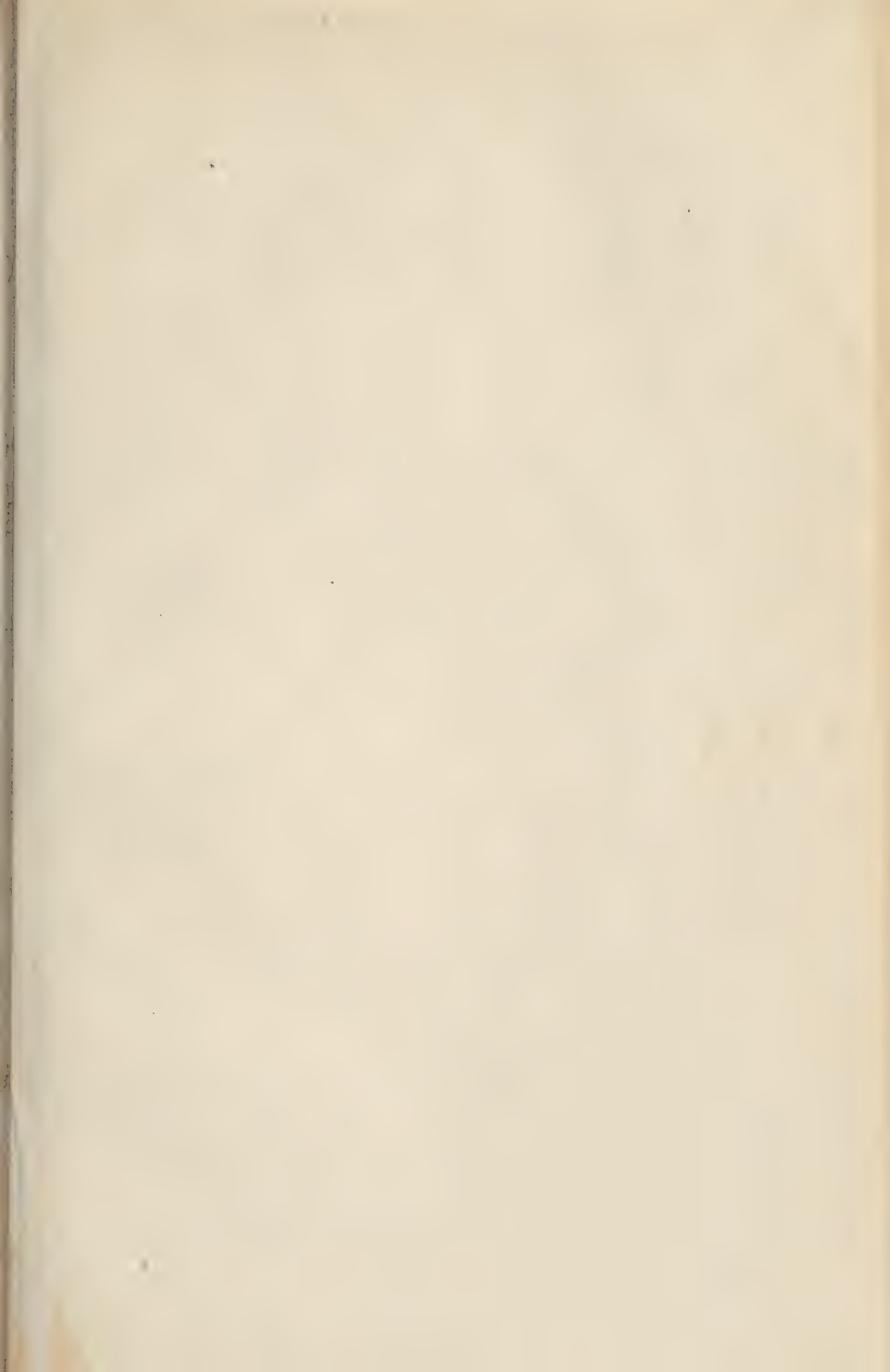
Health organizations employing personnel under the terms of the foregoing qualifications shall require any individual so employed to supplement his training as soon as practicable through education in public health work by courses equivalent to not less than a 2-year college course.

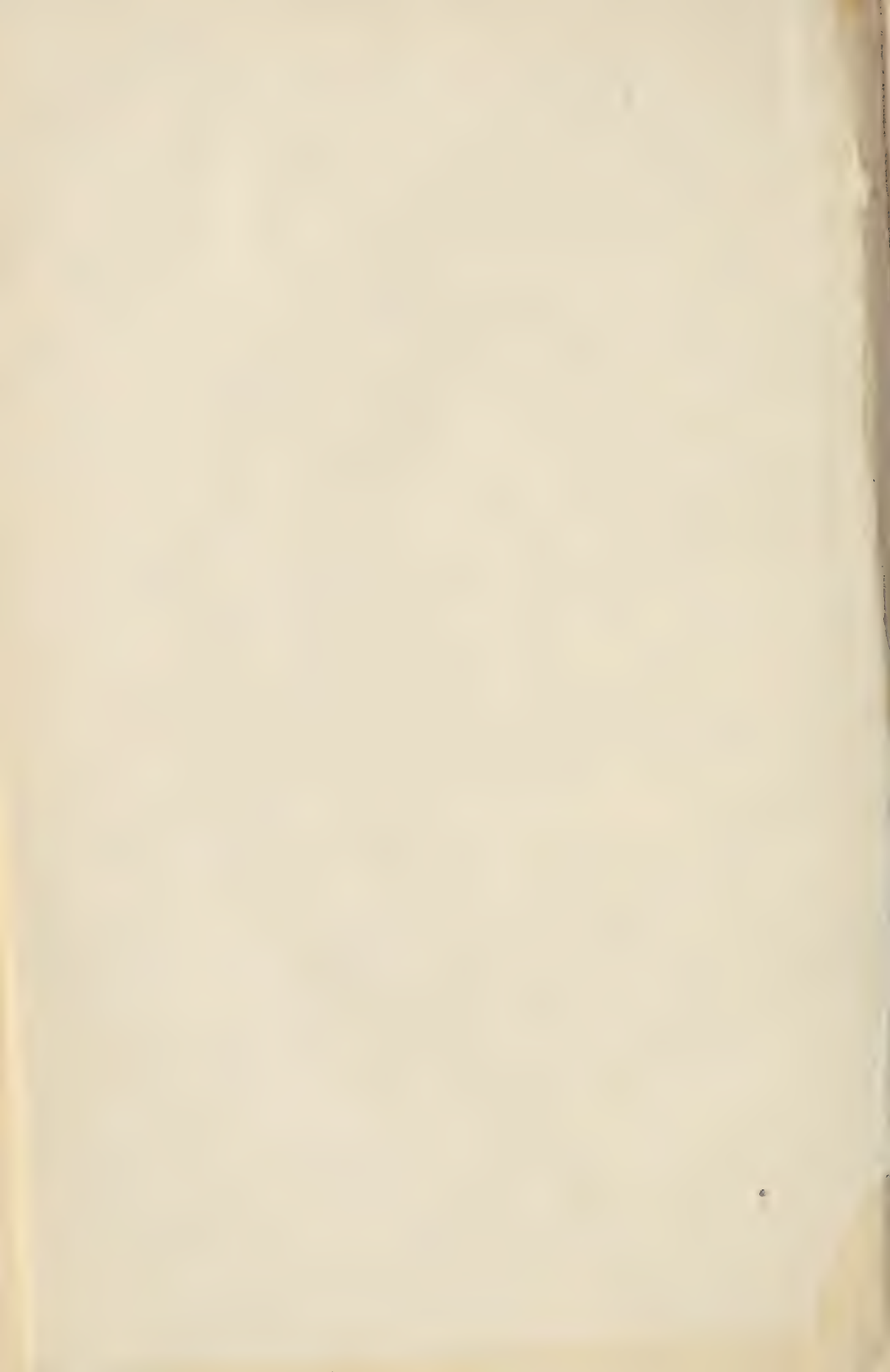
Preference in initial employment of personnel shall be given to individuals having college training, especially in biological and engineering subjects.

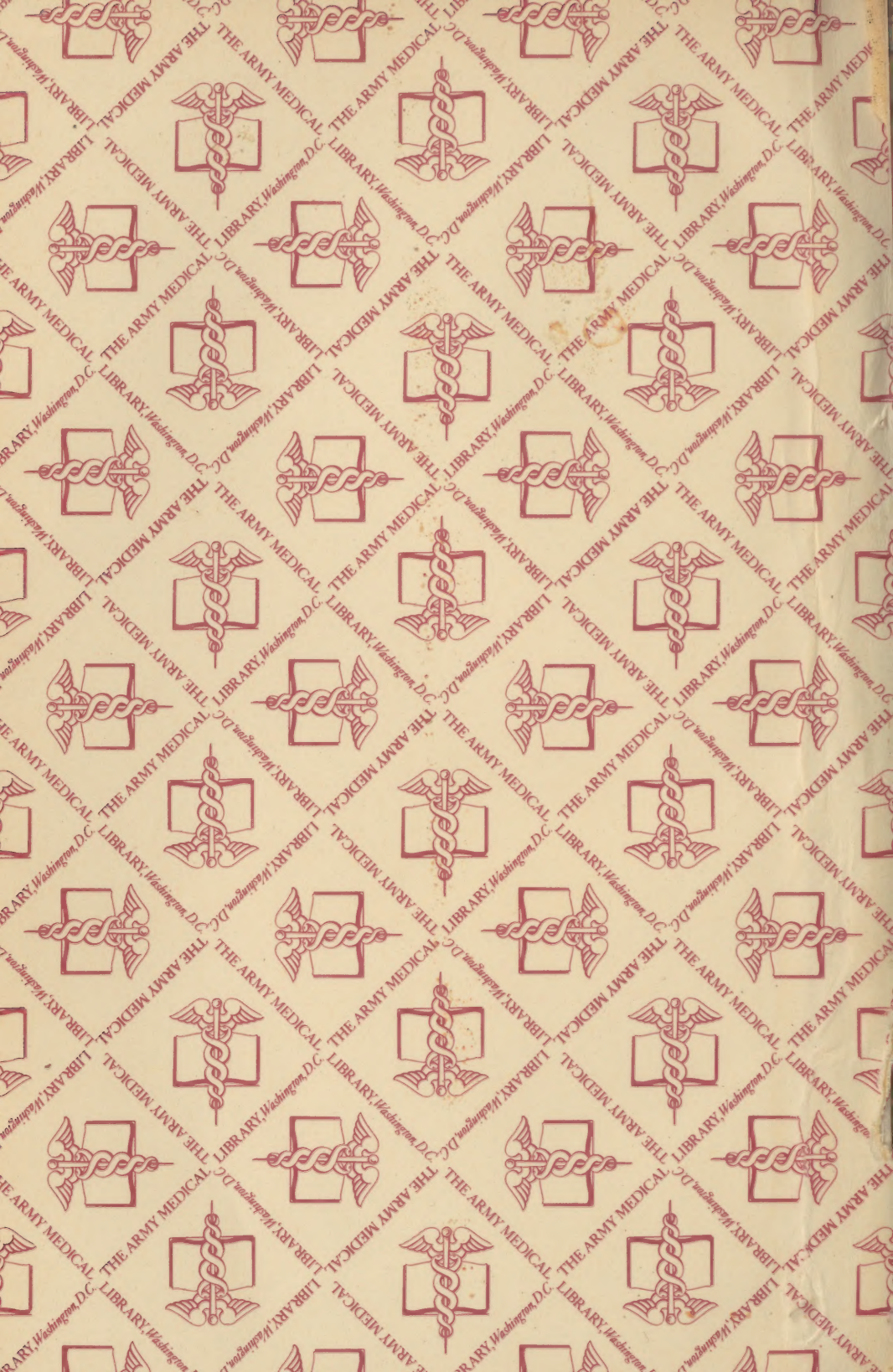


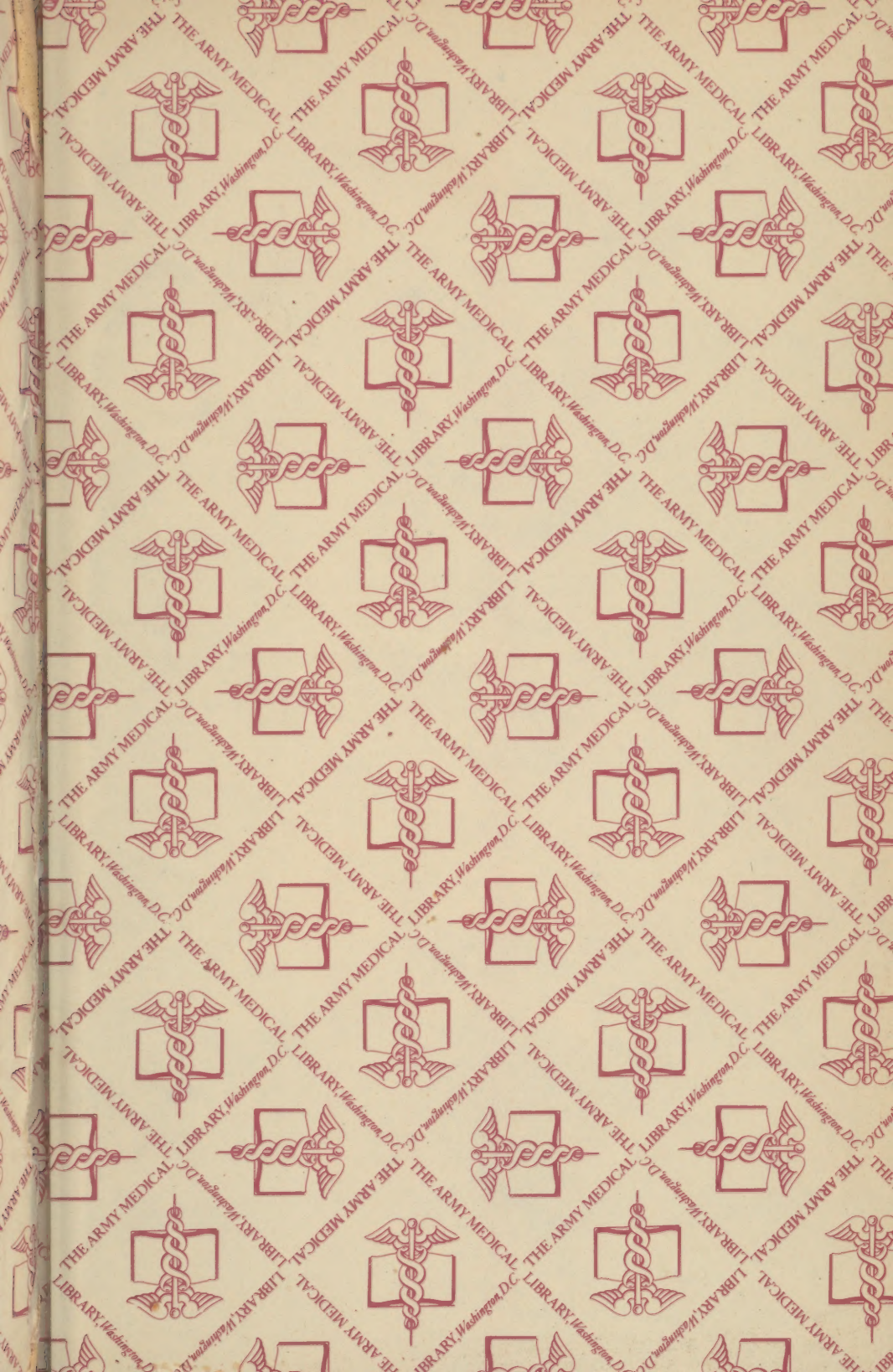












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